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NBSIR 84-3014

METROLOGY FOR ELECTROMAGNETIC TECHNOLOGY: A BIBLIOGRAPHY OF NBS PUBLICATIONS

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METROLOGY FOR ELECTROMAGNETIC TECHNOLOGY: A BIBLIOGRAPHY OF NBS PUBLICATIONS

Edited by
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Electromagnetic Technology Division
Center for Electronics and Electrical Engineering
National Engineering Laboratory
National Bureau of Standards
U.S. Department of Commerce
Boulder, CO 80303

July 1984

U.S. DEPARTMENT OF COMMERCE, Malcolm Baldrige, Secretary

NATIONAL BUREAU OF STANDARDS, Ernest Ambler, Director

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METROLOGY FOR ELECTROMAGNETIC TECHNOLOGY: A BIBLIOGRAPHY OF NBS PUBLICATIONS

Edited by

Robert A. Kamper and Kathryn E. Kline

This bibliography lists the publications of the personnel of the Electromagnetic Technology Division of NBS in the period from January 1970 through December 1983. A few earlier references that are directly related to the present work of the Division are included.

Key words: cryoelectronics; electromagnetic metrology; lasers; microwaves; optical fibers; superconducting materials; time domain metrology.

INTRODUCTION

The Electromagnetic Technology Division was formed during the reorganization of NBS in April 1978, by combining parts of the former Electromagnetics and Cryogenics Divisions. It develops measurement methods and standards, and provides metrological support for: microwave circuits, laser systems, optical communication equipment, systems using transient or pulsed electromagnetic phenomena, cryoelectronics, superconductors, and other unusual electrical engineering materials. For the individual staff members of the division, the reorganization brought a realignment of long-term goals but little immediate discontinuity in their work. It therefore makes good sense that this bibliography should cover a period beginning some time before the reorganization, so as to include at least the more recent origins of the present work of the division. The editors have attempted to include all work published by the present staff members of the division, while they were employees of NBS, in the period from January 1970 to December 1983. There are a few exceptions, where work that is totally unrelated to the present program has been excluded or where work by authors now in other parts of NBS has been included because of its special significance. The work on electromagnetic waveform metrology was moved to another part of the organization in October 1982. Papers submitted prior to that date are included, but later publications are not. A few papers on various topics published before 1970 have also been included because of their direct relationship to the present program.

There are several other sources that may be useful to the reader who is interested in activities at NBS connected with electromagnetic metrology. A companion bibliography to this one lists the publications of the Electromagnetic Fields Division. Its topics include metrology for: antennas, satellite communications equipment, electromagnetic interference, and hazard. Three bibliographies of the publications of the former Electromagnetics Division have been published: NBSIR 73-820 (July 1972-June 1973); NBSIR 74-395

(July 1973-June 1974); NBSIR 75-818 (July 1974-June 1975). These were preceded by a series of unpublished reports (edited by H. M. Altschuler) that cover the period back to 1956. An excellent summary of the whole field of electromagnetic metrology as it stood in 1967 was published as a special issue of the IEEE Proceedings (vol. 55; June 1967). Advances in the following decade were described in another special issue of the same journal (vol. 66; April 1978).

A Note on Abbreviations

Most readers will be familiar with the commonly used abbreviations for the names of the various professional journals that appear in this bibliography. There are also some publication series that are peculiar to NBS and may call for explanation. They are:

NBSIR - NBS Interagency/Internal Report
NBS TN - NBS Technical Note
NBS SP - NBS Special Publication
NBS HB - NBS Handbook
NBS JRES - NBS Journal of Research
NBS MN - NBS Monograph

Purchase Procedures and Document Availability

NBS Technical Notes and Special Publications may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Orders must be accompanied by postal money order, express money order, or check made out to the Superintendent of Documents.

NBS Interagency/Internal Reports (NBSIRs) may be purchased from the National Technical Information Service, Springfield, VA 22161. Orders must be accompanied by postal money order, express money order, or check made out to the NTIS.

Reprints of papers published in non-NBS media may be available in limited quantities from the authors.

Acknowledgments

A large part of the labor of preparing a bibliography is spent on collecting and arranging the material. We thank Frances Brown, Edie DeWeese, Jessie Page, and Sheila Aaker for their assistance with these chores. The prime source of material was the NTIS file, with access through the Lockheed Dialog System. This was supplemented with material supplied by the individual authors.

MICROWAVE METROLOGY

Millimeter Wave Standards at the National Bureau of Standards (NBS);
Kamper, R. A.; Hoer, C. A.
Proc. SPIE; Aug. 21-25, 1983; San Diego, CA, 423:144-146; 83.

Redundance: A Monitor of Six-Port Performance;
Engen, G. F.
IEE 1983 Colloquium on Advances in S-Parameter Measurement at Microwave Lengths, May 23, 1983; Savoy Place, London WC2BOBL, p 4/1-4/2; 83.

Choosing Line Lengths for Calibrating Network Analyzers;
Hoer, C.
IEEE/MTT 31(2):76-78; Jan 83.

Current Trends in NBS Calibration Services;
Kamper, R. A.
NCSL Newsletter, 22(1):38-39; Mar 1982.

Singularities in Calibration of Six-port Network Analyzers;
Ebbesen, H.; Engen, G.
1981 IEEE MTT-S Int. Microwave Symp. Digest, p 149; 81.

WR-10 Single Six-port Measurement System;
Weidman, M.
NBSIR 1650; 81.

A High Power Dual Six-port Automatic Network Analyzer Used in Determining Biological Effects of rf and Microwave Radiation;
Hoer, C.
IEEE Trans. Microwave Theory Tech., vol. NTT-29; Dec 81.

Control Cable Assemblies Used with Mobile FM Receivers;
Nelson, R. E.; Jickling, R.
National Institute of Justice, NIJ Std. 0216.00; Dec 81.

WR-10 Millimeter Wave Microcalorimeter;
Weidman, M.; Hudson, P. A.
NBS TN 1044; Jun 81.

A Least Squares Solution for Use in 6-port Measurement Technique;
Engen, G. F.
IEEE Trans. Microwave Theory Tech., MTT-28(12); Dec 80.

Performance of a Dual Six-Port Automatic Network Analyzer;
Hoer, Cletus A.
Proc. IEEE MTT-S 1979, Int. Microwave Symp. Digest:
The World of Microwaves, Apr 3-May 2, 1979; Orlando, FL, IEEE Cat. No. 79CHI439-9 MIT-S; 79.

Through-Load-Delay: An Improved Technique for Calibrating the Dual Six-port Automatic Network Analyzer;
Engen, G. F.; Hoer, C. A.
Int. Microwave Symp. Digest, Orlando, FL, p53; 79.

Calibrating a Six-Port Reflectometer with Four Impedance Standards;
Hoer, Cletus A.
NBS TN 1012; Mar 79.

Advantages of the Six-port Reflectometer for RF/Microwave Power Measurement in Operational Systems;
Komarek, E. L.
GOMAC Digest; 78.

Calibrating Two Six-Port Reflectometers With an Unknown Length of Precision Transmission Line;
Hoer, Cletus A.
Proc. IEEE MIT-S Int. Microwave Symp. Digest, Jun 27-29, 1978; Ottawa, Canada, p176-178; 78.

The Application of "Through-Short-Delay" to the Calibration of the Dual 6-port;
Engen, G. F; Hoer, C. A.; Speciale, R. A.
IEEE Int. Microwave Symp. Digest, p184-185; 78.

Calibrating the Six-port Reflectometer by Means of Sliding Terminations;
Engen, G. F.
IEEE Trans. Microwave Theory Tech. MTT-26:951-957; Dec 78.

NBS RF voltage Comparator;
Driver, L. D.; Ries, F. X.; Rebuldela, G.
NBSIR 78-871; Dec 78.

Status of RF and Microwave Calibration Services at NBS;
Kamper, R. A.
NCSL Newsletter 18:40; Dec 78.

Calibrating Two 6-Port Reflectometers with Only One Impedance Standard;
Hoer, Cletus A.
NBS TN 1004; Jun 78.

The Six-Port Measurement Technique: A Status Report;
Engen, Glenn F.
Microwave J. 21:18,21-22,24,84,87,89; May 78.

Advances in Microwave Measurement Science;
Engen, Glenn F.
Proc. IEEE 66:374-384; Apr 78.

Instrumentation: Six Ports Simplify Network;
Engen, Glenn F.
Microwave Syst. News, p 54-55; Jan 78.

A Microwave Network Analyzer Using Two 6-Port Reflectometers;
Hoer, Cletus
Proc. 1977 IEEE-MTT-S Int. Microwave Symposium, Jun 21-23, 1977; San Diego, CA, p 47-49; 77.

An Improved Circuit for Implementing the Six-Port Technique of Microwave Measurements;
Engen, Glenn F.
Proc. 1977 IEEE-MTT-S Int. Microwave Symposium, 21-23 Jun 1977; San Diego, CA, p 53-55; 77.

An Application of the Six-Port Junction to Precision Measurement of Microwave One-Port Parameters;
Komarek, E. L.
Proc. 1977 IEEE-MTT-S Int. Microwave Symposium, 21-23 Jun 1977; San Diego, CA, p 56-57; 77.

A Semi-Automated Six-Port for Measuring Millimeter Wave Power and Complex Reflection Coefficient;
Weidman, Manly P.
Proc. 1977 IEEE MTT-S Int. Microwave Symposium, 21-23 Jun 1977; San Diego, CA, p 58-60; 77.

Design Considerations for Automatic Network Analyzers Based on the Six-Port Concept;
Engen, Glenn F.
Proc. IEE Euromeas 77 Conf., Sep 5-9, 1977; Sussex, England; London, England: IEE, p 110-111; 77.

Fixed and Base Station Antennas;
Treado, M. J.; Taggart, H. E.; Nelson, R. E.; Workman, J. L.
NILECJ-STD-0204.00; 77.

The Six-Port Reflectometer: An Alternative Network Analyzer;
Engen, Glenn F.
Proc. 1977 IEEE-MTT-S Int. Microwave Symposium, 21-23 Jun 1977; San Diego, CA, p 44-46; 77.

Ultrasonic Calorimeter for Beam Power Measurements from 1 to 15 Megahertz;
Zapf, T. L.; Harvey, M. E.; Larsen, N. T.; Stoltenberg, R. E.
Proc. Ultrasonics Symposium, Sep 29-Oct 1, 1976; Annapolis, MD, IEEE Cat76 CH1120-5SU, p 573-576; 77.

A Network Analyzer Incorporating Two 6-Port Reflectometers;
Hoer, Cletus A.
IEEE Trans. Microwave Theory Tech. MIT-25:1070-1074; Dec 77.

An Improved Circuit for Implementing the Six-Port Technique of Microwave Measurements;
Engen, Glenn F.
IEEE Trans. Microwave Theory Tech. MTT-25:1080-1083; Dec 77.

A Semi-Automated Six-Port for Measuring Millimeter Wave Power and Complex Reflection Coefficient;
Weidman, Manly P.
IEEE Trans. Microwave Theory Tech. MTT-25:1083-1085; Dec 77.

Performance Characteristics of an Automated Broad-Band Bolometer Unit Calibration System;
Komarek, Ernest L.
IEEE Trans. Microwave Theory MTT-25:1122-1127; Dec 77.

NBS Type IV RF Power Meter Operation and Maintenance;
Larsen, Neil T.
NBSIR 77-866; Oct 77.

Six-Port Measuring Circuit; Patent Application;
Engen, Glenn F.
PAT-APPL-829 381; Filed 31 Aug 77.

The National Electromagnetic Measurement System;
Kamper, R. A.
NBSIR 75-936; Jun 77.

Vector Voltmeter;
Hoer, Cletus A.; Engen, Glenn F.
PATENT-4 001 681; patented 4 Jan 77.

An Automated Broadband System for Measurement of One-Port Microwave Parameters;
Komarek, Ernest L.
CPEM Digest, p 167-170; 76.

A New Self-Balancing DC-Substitution RF Power Meter;
Larsen, Neil T.
CPEM Digest, p 203-205; 76.

An NBS Developed Automatic Network Analyzer;
Little, W.; Wakefield, J.; Heim, L.; Allred, C.; Zapf, T.
CPEM Digest, p 130-133; 76.

Measurement of Complex Microwave Circuit Parameters Using Only Power Detectors;
Engen, Glenn F.
CPEM Digest, p 171; 76.

Measuring and Minimizing Diode Detector Nonlinearity;
Hoer, C. A.; Roe, K. C.; Allred, C. M.
CPEM Digest, p 108-109; 76.

Reflection Coefficient Standards for Automated Network Analyzers;
Little, W. E.; Yates, B. C.
CPEM Digest, p 128-129; 76.

Repeatability of SMA Coaxial Connectors;
Jesch, R. L.
IEEE Trans. Instrum. Meas. IM-25:314-320; 76.

Scattering Parameters of SMA Coaxial Connectors;
Estin, A. J.
IEEE Trans. Instrum. Meas. IM-25:329-334; 76.

A Guide to Voice Scramblers for Law Enforcement Agencies;
Nelson, Robert E.
NBS SP 480-8; Dec 76.

A New Self-Balancing DC-Substitution RF Power Meter;
Larsen, Neil T.
IEEE Trans. Instrum. Meas. IM-25:343-347; Dec 76.

Determination of Microwave Phase and Amplitude from Power Measurements;
Engen, Glenn F.
IEEE Trans. Instrum. Meas. IM-25:414-418; Dec 76.

Ultrasonic Calorimeter for Beam Power Measurements;
Zapf, Thomas L.; Harvey, Morris E.; Larsen, Neil T.; Stoltenberg, Robert E.
NBS TN 686; Sep 76.

A Microwave Vector Voltmeter System;
Roe, Keith C.; Hoer, Cletus A.
NBSIR 76-844; Aug 76.

Implementation of the Notch Technique as an RF Peak Pulse Power Standard;
Simpson, Philip A.; Hudson, Paul A.
NBS TN 682; Jul 76.

The Calibration and Use of Directional Couplers Without Standards;
Allred, C. McKay; Manney, Charles H.
IEEE Trans. Instrum. Meas. IM-25:84-89; Mar 76.

The National Measurement System for Medical Ultrasonics;
Hudson, Paul A.
NBSIR 75-937; Feb 76.

A Precision 30 MHz Waveguide-Below-Cutoff Attenuator with an Absolute Electronic Readout, NBS Model XII;
Adair, Robert T.
NBSIR 76-833; Jan 76.

Automated Calibration of Directional-Coupler-Bolometer-Mount Assemblies;
Engen, Glen F.
Proc. 1975 IEEE Microwave Theory and Technique Symp. Int., May 12-14, 1975;
Palo Alto, CA, p 98-99; 75.

Automated Calibration of Directional-Coupler-Bolometer-Mount Assemblies;
Engen, Glenn F.
IEEE Trans. Microwave Theory Tech. MTT-23:984-990; Dec 75.

Using an Arbitrary Six-Port Junction to Measure Complex Voltage Ratios;
Hoer, Cletus A.; Roe, Keith C.
IEEE Trans. Microwave Theory Tech. MTT-23:978-984; Dec 75.

Using Six-Port and Eight-Port Junctions to Measure Active and Passive Circuit Parameters;
Hoer, Cletus A.
NBS TN 673; Sep 75.

Self-Balancing DC-Substitution Measuring System; Patent Application;
Larsen, Neil T.; Reeve, Gerome R.
PAT-APPL-587 565; filed 17 Jun 75.

Characterization of a High Frequency Probe Assembly for Integrated Circuit Measurements;
Jesch, R. L.; Hoer, C. A.
NBS TN 663; Apr 75.

An Alternative Calibration Technique for Automated Network Analyzers with Application to Adapter Evaluation;
Engen, Glenn F.
Proc. 1974 IEEE S-MTT Int. Microwave Symposium, Jun 12-14, 1974 Atlanta, GA, Microwave Symposium Digest, p 261-262; 74.

An Application of the Power Equation Concept and Automation Techniques to Precision Bolometer Unit Calibration;
Komarek, Ernest L.
Proc. 1974 IEEE S-MTT International Microwave Symposium, Jun 12-14, 1974 Atlanta, GA, Microwave Symposium Digest, p 263-265; 74.

An Application of the Power Equation Concept and Automation Techniques to Precision Bolometer Unit Calibration;
Komarek, Ernest L.; Tryon, Peter V.
IEEE Trans. Microwave Theory Tech. Part II, 1974 Symposium Issue, MTT-22:1260-1267; Dec 74.

Calibration Technique for Automated Network Analyzers with Application to Adapter Evaluation;
Engen, Glenn F.
IEEE Trans. Microwave Theory Tech. Part II, 1974 Symposium Issue, MTT-22:1255-1260; Dec 74.

Broadband Pulsed/CW Calibration Signal Standard for Field Intensity Meter (FIM) Receivers;
Simpson, Philip A.
NBSIR 74-371; Jun 74.

Completion of the Program to Evaluate/Improve Instrumentation and Test Methods for Electroexplosive Device Safety Qualification;
Hudson, Paul A.; Melquist, Dean G.; Ondrejka, Arthur R.; Werner, Paul E.
NBSIR 74-379; Jun 74.

Comments on Practical Analysis of Reflectometers and Power Equation Concepts;
Engen, Glenn F.
IEEE Trans. Instrum. Meas. IM-23:104-105; Mar 74.

Analysis of a Six-Port Junction for Measuring, v, i, a, b, z, Gamma, and Phase;
Hoer, C. A.; Engen, G. F.
Proc. 6th Conf. Int. Meas. Confederation, Jun 17-23, 1973; Dresden, Germany, Acta IMEKO 1:213-222; 73.

Self-Calibration of Complex Ratio Measuring System;
Allred, C. M.; Manney, C. H.
Proc. Int. Conf. Measurement and Instrumentation, Jun 17-23, 1973; Dresden, Germany, ACTA IMEKO 1, p 157-166; 73.

Calibration of an Arbitrary Six-Port Junction for Measurement of Active and Passive Circuit Parameters;
Engen, Glenn F.
IEEE Trans. Instrum. Meas. IM-22:295-299; Dec 73.

Application of a Non-Ideal Sliding Short to Two-Port Loss Measurement;
Weidman, M. P.; Engen, G. F.
NBS TN 644; Oct 73.

Summary of WR15 Flange Evaluation at 60 GHz;
Yates, B. C.; Counas, G. J.
NBS TN 642; Oct 73.

Mismatch Considerations in Evaluating Amplifier Noise Performance;
Engen, Glenn F.
IEEE Trans. Instrum. Meas. IM-22:274-278; Sep 73.

Theory of UHF and Microwave Measurements Using the Power Equation Concept;
Engen, Glenn F.
NBS TN 637; Apr 73.

Application of an 'Arbitrary' 6-Port Junction to Power Measurement Problems;
Engen, Glenn F.; Hoer, Cletus A.
Proc. 1972 Conf. Precision Electromagnetic Measurements, Jun 26-29, 1972, Boulder, CO; New York, NY: IEEE, p 100-101; 72.

Application of an Arbitrary 6-Port Junction to Power-Measurement Problems;
Engen, Glenn F.; Hoer, Cletus A.
IEEE Trans. Instrum. Meas. IM-21:470-474; Nov 72.

The Six-Port Coupler: A New Approach to Measuring Voltage, Current, Power, Impedance, and Phase;
Hoer, Cletus A.
IEEE Trans. Instrum. Meas. IM-21:466-470; Nov 72.

Broad-Band Lumped-Element Directional Coupler;
Hoer, Cletus A.
PATENT-3 701 057; patented 24 Oct 72.

Millimeter Attenuation and Reflection Coefficient Measurement System;
Yates, B. C.; Larson, W.
NBS TN 619; Jul 72.

The 6-Port Coupler; A New Approach to Measuring V, I, P, Z, and Theta;
Hoer, Cletus A.
Digest of Precision Electromagnetic Measurements Conf., Boulder, CO, p 26-29; Jun 72.

An Extension to the Sliding Short Method of Connector and Adaptor Evaluation;
Engen, G. F.
NBS J. Res. 75C:177-183; 71.

Power Measuring and Leveling System Using a Self-Balancing Bridge;
Larsen, Neil T.; Clague, Frederick R.
PATENT-3 611 130; patented 5 Oct 71.

An Adjustable-Slot-Length UHF Coaxial Coupler with Decade Bandwidth;
Hudson, P. A.; Saulsbery, L. F.
IEEE Trans. Microwave Theory Tech. MTT-19:781-783; Sep 71.

Standard Field Strength Meter;
Lawton, Robert A.; Allred, Charles McKay
PATENT-3 586 973; patented 22 Jun 71.

International Intercomparison of Power Standards at 3 GHz;
Engen, Glenn F.; Hudson, Paul A.
IEEE Trans. Microwave Theory Tech. MTT-19:411-413; Apr 71.

An Excitation System for Piston Attenuators;
Cook, C. C.; Allred, C. M.
IEEE Trans. Instrum. Meas. IM-20:10-16; Feb 71.

Power Equations: A New Concept in the Description and Evaluation of Microwave Systems;
Engen, Glenn F.
IEEE Trans. Instrum. Meas. IM-20:49-57; Feb 71.

Theorem Giving Limits for S22 When S11 and the Two-Port Efficiency are Known;
Engen, Glenn F.
IEEE Trans. Instrum. Meas. IM-20:78; Feb 71.

An Immittance Transcomparator;
Agy, David L.; Nelson, R. E.
Annual Precision Measurement Association Metrology Conf. (3rd), Jun 17-18, 1970; Gaithersburg, MD, 1:147-154; 70.

Improvements to the NBS RF Peak-Pulse Power Standard;
Simpson, P. A.; Ondrejka, A. R.
Instrument Society of America Silver Jubilee Int. Conf. and Exhibit, Oct 1970; Philadelphia, PA, Paper 709-70, p 1-7; 70.

A New Method of Characterizing Amplifier Noise Performance;
Engen, Glenn F.
IEEE Trans. Instrum. Meas. IM-19:344-349; Nov 70.

Broad-Band Resistive-Divider-Type Directional Coupler;
Hoer, C. A.; Agy, D. L.
IEEE Trans. Instrum. Meas. IM-19:336-343; Nov 70.

A Method for Designing Multi-Screw Waveguide Tuners;
Weidman, M. P.; Campbell, E.
NBS TN 393; Oct 70.

A New Standard for Electric Field Strength;
Lawton, R. A.
IEEE Trans. Instrum. Meas. IM-19:45-51; Feb 70.

A Wide Range CW Power Measurement Technique;
Lawton, R. A.; Allred, C. M.; Hudson, P. A.
IEEE Trans. Instrum. Meas. IM-19:28-34; Feb 70.

An Introduction To The Description and Evaluation of Microwave Systems Using Terminal Invariant Parameters;
Engen, Glenn F.
NBS MN 112; Oct 69.

Measurement of RF Peak Pulse Power;
Hudson, P. A.
Proc. IEEE 55:851-855; 67.

RF Attenuation;
Russell, D. H.; Larson, W.
Proc. IEEE 55:942-959; Jun 67.

System for Measuring Peak Pulse Power Using Sampling and Comparison Techniques;
Hudson, Paul A.; Ecklund, Warner L.; Ondrejka, Arthur R.
PATENT-3 239 758; patented 8 Mar 66.

An Unmodulated Twin-Channel Microwave Attenuation Measurement System;
Russell, D. H.
ISA Trans. 4:162-169; Apr 65.

OPTICAL ELECTRONIC METROLOGY

Birefringence Measurements in Single Mode Optical Fiber;
Day, G. W.
Proc. SPIE, August 21-24, 1983, San Diego, CA, 42:72-79; 83.

Fiber Optics: Short-Haul and Long-Haul Measurements and Applications;
Gallawa, R. L.
Proc. SPIE, Aug. 24-25, 1982. SPIE, P.O. Box 10, Bellingham, WA 98227;
vol. 355; 83.

Submicrometer Interdigital Silicon Detectors for the Measurement of Picosecond Optical Pulses;
Phelan, R. J.; Larson, D.; Frederick, N. V.; Franzen, D. L.
Proc. SPIE, Single Mode Optical Fibers, 425:207-211; 83.

Estimating Index Profiles of 1.3 μm Single Mode Fibers by Near-Field Measurements at Blue Wavelengths;
Kim, E. M.; Franzen, D. L.; Young, M.; Rodhe, P. M. (Guest Worker)
IEEE J. Lightwave Tech. LT-1(4):562-566; Dec 83.

Simulating the Scratch Standards for Optical Surfaces--Theory;
Johnson, E.
J. Appl. Opt. 22(24):4056-4068; Dec 83.

Optical Fiber Characterization Attenuation, Frequency Domain Bandwidth, and Radiation Patterns;
Chamberlain, G. E.; Day, G. W.; Franzen, D. L.; Gallawa, R. L.; Kim, E. M.; Young, M.
NBS SP 637, vol. II; Oct. 83.

Linewidth Measurement by High-Pass Filtering--A New Look;
Young, M.
Appl. Opt. 22(13):2022-2025; Jul 83.

Laser Measurements;
Sanders, A. A.
Proc. 1983 Measurement Science Conf., Jan. 20-21; Palo Alto, CA; Jun 83.

Measurement of Multimode Optical Fiber Attenuation: An NBS Special Test Service;
Gallawa, R. L.; Chamberlain, G. E.; Day, G. W.; Franzen, D. L.; Young, M.
NBS TN 1060; Jun 83.

Optical Time-Domain Reflectometer Performance and Calibration Studies;
Danielson, B. L.
TN-1064; Jun 83.

Two-Dimensional Near-Field Contouring of Optical Fiber Cores;
Kim, E. M.; Franzen, D. L.
Proc. SPIE; Jun 83.

Objective Measurements and Characteristics of Scratch Standards;
Young, M.
Proc. SPIE, August 1982, 3526:86-92; Spring 83.

EIA Fiber Performance Measurement Standards;
Gallawa, R.; Franzen, D. L.
Photonics Spectra, p 55-68; Apr 83.

Questions Students Ask;
Young, M.
Physics Teacher, p 194-195; Mar 83.

An Inter-Laboratory Measurement Comparison of Core Diameter on Graded-Index Optical Fibers;
Kim, E. M.; Franzen, D. L.
NBS SP 641; Oct 82.

A System for Measuring Energy and Peak Power of Low-Level 1.064 μm Laser Pulses;
Sanders, A. A.; Rasumussen, A. L.
NBS TN 1058; Oct 82.

Measurement of the Core Diameter of Graded-Index Optical Fibers: An Interlaboratory Comparison;
Kim, E. M.; Franzen, D. L.
Appl. Opt. 21(19):3443-3450; Oct 82.

Technical Digest - Symposium on Optical Fiber Measurements, 1982;
Franzen, D. L.; Day, G. W.; Gallawa, R. L., eds.
NBS SP 641; Oct 82.

Beam-Profile Measurement of Pulses Using a Spatial Filter to Sample the Hermite Modes for a String of Pulses;
Johnson, E. G.
NBS TN 1057; Sep 82.

Documentation of the NBS C, K, and Q Laser Calibration Systems;
Case, W. E.
NBSIR 82-1676; Sep 82.

Optical Fiber Characterization;
Day, G. W.; Danielson, B. L.; Franzen, D. L.; Kim, E.; Young, M., eds.
NBS SP 637, vol. 1; Jul 82.

Calibration Reticle for Optical Fiber Near-Field Core Diameter Measurements;
Kim, E. M.; Franzen, D. L.
CPEM Digest; May 82.

Characterization of a Concentric-Core Fiber;
Danielson, B. L.; Franzen, D. L.; Gallawa, R. L.; Kim, E. M.; Young, M.
NBSIR 82-1661; Apr 82.

On the Definition of Fiber Numerical Aperture;
Gallawa, R. L.
Electro-Optical Systems Design, p 47; Apr 82.

Quantum Noise Limits the Pinspeck Camera to Simple Objects;
Young, M.
J. Opt. Soc. Amer. 72(3):402-403; Mar 1982.

Optical Waveguide Communications Glossary;
Gallawa, R. L., et al.
NBS HB 140; Jan 82.

Book Review: Principles of Optical Fiber Measurements by D. Marcuse;
Young, M.
Laser Focus, p 118-119; Jan 82.

Backscattter Signature Simulations;
Danielson, B. L.
NBS TN 1050; Dec 1981.

Long Optical Fiber Fabry Perot Interferometers;
Franzen, D. L.; Kim, E.
Appl. Opt. 20(23):3991-3992; 81.

A Measurement Method for Determining the Optical and Electro-optical Properties of a Thin Film;
Larson, D.
NBSIR 81-1652; Dec 81.

An Optical Waveguide Communications Glossary, Revised;
Hanson, A. G.; Bloom, L. R.; Day, G. W.; Young, M.; Gray, E. M.; Gallawa, R. L.
NBS HB 140; Dec 81.

Book Review: Optical Fibre Communication (invited review);
Gallawa, R.
IEEE Spectrum, 1 p; Nov 81.

The Use of LEDs as YAG Laser Simulators;
Young, M.
Proc. Conf. Electro-Optics and Lasers; Nov 81.

Optical Fiber Index Profiles by Refracted-Ray Scanning;
Young, M.
Appl. Opt. 20(19):3415-21; Oct 81.

Measurement of Optical Fiber Bandwidth in the Frequency Domain;
Day, G. W.
NBS TN 1046; Sep 81.

Standard Measurement Conditions and Test Results on Multimode Fibers;
Franzen, D. L.
Laser Focus, p 103-105; Aug 81.

The Use of LEDs to Simulate Weak YAG-laser Beams;
Young, M.
NBS TN 1031; Revised Aug 81.

Interlaboratory Measurement Comparison to Determine the Attenuation and Bandwidth of Graded-index Fibers;
Franzen, D. L.; Day, G. W.; Danielson, B. L.; Chamberlain, G. E.; Kim, E.
Appl. Opt. 20(14):2412-2419; 15 Jul 81.

The Characterization of Optical Fiber Waveguides: A Bibliography with Abstracts, 1970-1980;
Day, G. W.
NBS TN 1043; Jun 81.

Refracted-ray Scanning (Refracted Near-Field Scanning) for Measuring Index Profiles of Optical Fibers;
Young, M.
NBS TN 1038; May 81.

Present NBS Capability in Optical Fiber Measurements;
Day, G. W.; Franzen, D. L.
Proc. 1st Int. DoD/Industry Fiber Optics Standards Conf., Washington, DC; Apr 81.

Results of an Interlaboratory Measurement Comparison Among Fiber Manufacturers to Determine Attenuation, Bandwidth, and Numerical Aperture of Graded Index Optical Fibers;
Franzen, D. L.; Day, G. W.; Danielson, B. L.; Kim, E.
Conf. Digest 3rd Intl. Conf. Integrated Optics & Optical Fiber Comm., San Francisco, CA; Apr 81.

Results of an Inter-Laboratory Measurement Comparison to Determine the Radiation Angle (NA) of Graded Index Optical Fibers;
Franzen, D. L.; Kim, E.
Appl. Opt. 20(7):1218-1220; Apr 81.

Sub-nanosecond Electrical Modulation of Light with Hydrogenated Amorphous Silicon;
Phelan, R. J.; Larson, D. R.; Werner, P. E.
Appl. Phys. Lett. 38(8); Apr 15, 81.

Backscatter Measurements in Optical Fibers;
Danielson, B. L.
NBS TN 1034; Feb 81.

Measurement of Far-field and Near-field Radiation Patterns from Optical Fibers;
Kim, E.; Franzen, D. L.
NBS TN 1032; Feb 81.

Progress in Fiber Measurements;
Day, G. W.; Franzen, D. L.
Laser Focus, p 52-56; Feb 81.

A System for Characterizing Detectors for the Measurement of Power of CO_2 TEA Laser Pulses;
Simpson, P. A.
Proc. 11th Annual Electro-Optical Laser Conf., Oct 23-25, 1979; Ind. and Sci. Conf. Management, Inc., 222 W. Adams St., Chicago, IL 60606, p 3999-4007; 80.

The Role of Backscatter Signatures in Optical Fiber Characterization;
Danielson, B. L.
Tech. Digest 1st Int. DoD Ind. Fiber Optics Congress, Apr 20, 1980; Washington, DC; 80.

Linearity and Resolution of Refracted Near-Field Scanning Techniques;
Young, M.
Digest Symposium on Optical Fiber Measurements, NBS SP 597; Oct 80.

Technical Digest, Symposium on Optical Fiber Measurements, 1980;
Day, G. W.; Franzen, D. L., eds.
NBS SP 597; Oct 80.

A System for Measuring the Characteristics of High Peak Power Detectors of Pulsed CO_2 Laser Radiation;
Simpson, P. A.
NBS TN 1023; Sep 80.

Calibration Technique for Refracted Near-field Scanning of Optical Fibers;
Young, M.
Appl. Opt. 19:2479-80: Aug 80.

Measuring Features of the Fluence at the Far Field of a CO_2 Pulsed Laser--An Issue Study With Suggestions on How To Do It;
Johnson, E. G, Jr.
NBSIR 80-1628; Apr 80.

An Assessment of the Backscatter Technique as a Means for Estimating Loss in Optical Waveguides;
Danielson, B. L.
NBS TN 1018; Feb 80.

Measurement of Optical Fiber Bandwidth in the Time Domain;
Franzen, D. L.; Day, G. W.
NBS TN 1019; Feb 80.

LED Source for Determining Optical Detector Time Response at 1.06 Micrometers;
Franzen, D. L.; Day, G. W.
Rev. Sci. Instr. 50:1029; 79.

Linear Systems, Fourier Transforms and Optics by J. D. Gaskill; (book review)
Young, M.
J. Opt. Soc. Amer. 69:637-638; 79.

Measurement of Low Level Laser Pulses at 1.064 μm;
Rasmussen, A. L.; Sanders, A. A.
Measurements of Optical Radiation, SPIE 196:96-103; 79.

Measurement of Propagation Constants Related to Material Properties in High Bandwidth Optical Fibers;
Franzen, D. L.; Day, G. W.,
IEEE J. Quantum Electron. QE-15(12); Dec 79.

Continuous-Wave (Mode-Locked) Dye Laser with Unfolded Cavity;
Young, M.
Appl. Opt. 18:3212; Oct 79.

Limitations Imposed by Material Dispersion on the Measurement of Optical Fiber Bandwidth with Laser Diode Sources;
Franzen, D. L.; Day, G. W.,
J. Opt. Soc. Amer. 69(10); Oct 79.

Optical Waveguide Communications Glossary;
Hanson, A. G.; Bloom, L. R.; Day, G. W.; Gallawa, R. L.; Gray, E. M.; M. Young
NTIA SP 79-4; Sep 79.

Time Domain Pulse Measurements and Computed Frequency Response of Optical Communications Components;
Andrews, J. R.; Young, M.
NBSIR 79-1620; Sep 79.

National Standards of a Powerful Sort;
Sanders, A. A.
Opt. Spectra 13:45; Aug 79.

Quality Assurance Program for the NBS, C, K, and Q Laser Calibration Systems;
Case, W. E.
NBSIR 79-1619; Aug 79.

Design of a Reflection Apparatus for Laser Beam Profile Measurements;
Johnson, E. G., Jr.
NBS TN 1015; Jul 79.

Fiber Measurements: Quality and Cost;
Day, G. W.
Proc. Int. Conf. on Communications, Boston; Jun 79.

Attenuation Measurements on Optical Fiber Waveguides: An Interlaboratory Comparison Among Manufacturers;
Day, G. W.; Chamberlain, G. E.
NBSIR 79-1608; May 79.

Conference on Optical Scattering Standards;
Young, M.
Proc. SPIE Conf.; Apr 79.

Laser Beam Profile Measurements Using Spatial Sampling, Fourier Optics, and Holography;
Johnson, Eric G., Jr.
NBS TN 1009; Jan 79.

A Simple First Positive System Nitrogen Laser for use in Optical Fiber Measurements;
Franzen, D. L.; Danielson, B. L.; Day, G. W
IEEE J. Quantum Electron. QE-14:548; 78.

Measurement Problems in Multimode Optical Waveguides;
Day, G. W.
Proc. Int. Com. Conf., Jun 1978; Toronto, Canada, vol. 1; 78.

Optical Fiber Phase Discriminator;
Danielson, B. L.
Appl. Opt. 17:3665-3668; Nov 78.

Improvements in a Calorimeter for High-Power CW Lasers;
Chamberlain, George E.; Simpson, Philip A.; Smith, Richard L.
IEEE Trans. Instrum. Meas. IM-27:81-86; Mar 78.

Laser Far-Field Beam-Profile Measurements by the Focal Plane Technique;
Day, G. W.; Stubenrauch, C. F.
NBS TN 1001; Mar 1978.

Fiber Optics Metrology at NBS;
Danielson, B.; Day, G.; Franzen, D.
Proc. Union Radio Scientifique Internationale Comm. Symp., Oct 3-7, 1977; Lannion, France, (International Union of Radio Science, France), p 430-431; Dec 77.

Evaluating the Inequivalence and a Computational Simplification for the NBS Laser Energy Standards;
Johnson, Eric G., Jr.
Appl. Opt. 16:2315-2321; Aug 77.

Measurement Procedures for the Optical Beam Splitter Attenuation Device BA-1;
Danielson, B. L.
NBSIR 77-858; May 77.

Proposed Standards for Ladar Signatures;
Danielson, B. L.
NBSIR 77-856; Apr 77.

An NBS Laser Measurement Assurance Program (MAP);
Sanders, A. A.; Cook, A. R.
Proc. Electro-Optical Systems Design Conf. 1976 and Int. Laser Exposition, Sep 14-16, 1976; New York, p 277-280; 76.

Laser Action in Sputtered Metal Vapors;
McNeil, J. R.; Johnson, W. L.; Collins, G. J.; Persson, K. B.; Franzen, D. L.
9th Int. Conf. on Quantum Electronics, Jun 14-16, 1976; Amsterdam, The Netherlands, p 162-163; 76.

Performance and Characteristics of Polyvinylidene Fluoride Pyroelectric Detectors;
Day, G. W.; Hamilton, C. A.; Gruzensky, P. M.; Phelan, R. J., Jr.
Proc. IEEE Symposium on Application of Ferroelectrics, Jun 9-11, 1975; Albuquerque, NM; Ferroelectrics 10:99-102; 76.

Absolute Reference Calorimeter for Measuring High Power Laser Pulses;
Franzen, D. L.; Schmidt, L. B.
Appl. Opt. 15:3115-3122; Dec 76.

Spectral Reference Detector for the Visible to 12 Micrometer Region; Convenient, Spectrally Flat;
Day, G. W.; Hamilton, C. A.; Pyatt, K. W.
Appl. Opt. 15:1865-1868; Jul 76.

An Electrically Calibrated Pyroelectric Radiometer System;
Hamilton, C. A.; Day, G. W.; Phelan, R. J., Jr.
NBS TN 678; Mar 76.

Ultraviolet Laser Action from Cu II in the 2500-A Region;
McNeil, J. R.; Collins, G. J.; Persson, K. B.; Franzen, D. L.
Appl. Phys. Lett. 28:207-209; Feb 76.

Laser Attenuators for the Production of Low Power Beams in the Visible and 1.06 micron Regions;
Danielson, B. L.; Beers, Yardley
NBS TN 677; Jan 76.

Radiometry Without Standard Sources/Electrically Calibrated Pyroelectrics;
Phelan, Robert J. Jr; Hamilton, Clark A.; Day, Gordon W.
Proc. Society of Photo-Optical Instrumentation Engineers, Aug 17-22, 1975; San Diego, CA, Paper in Modern Utilization of Infrared Technology Civilian and Military, SPIE 62:159-165; 75.

Pyroelectric Radiometers Get Off The Drawing Board;
Hamilton, C. A.; Phelan, R. J., Jr; Day, G. W.
Opt. Spectra 9:37-38; Oct 75.

Improving Beam Measurement;
Smith, R. L.; Sanders, A. A.
Laser Focus, p 70-71; Apr 75.

Precision Beam Splitters for CO2 Lasers;
Franzen, Douglas L.
Appl. Opt. 14:647-652; Mar 75.

A Pyroelectric Power Meter for the Measurement of Low Level Laser Radiation;
Hamilton, C. A.; Day, G. W.
NBS TN 665; Feb 75.

The Polarization of PVF and PVF2 Pyroelectrics;
Phelan, R. J. Jr; Peterson, R. L.; Hamilton, C. A.; Day, G. W.
Ferroelectrics 7:375-377; 74.

Current Status of NBS Low-Power Laser Energy Measurement;
West, E. D.; Case, W. E.
Proc. Conf. on Precision Electromagnetic Measurements, Jul 1-5, 1974;
London, England, IEEE Trans. Inst. Meas. IM-23:422-425; Dec 74.

Analysis of Response of Pyroelectric Optical Detectors;
Peterson, R. L.; Day, G. W.; Gruzensky, P. M.; Phelan, R. J.
J. Appl. Phys. 45:3296-3303; Aug 74.

Effects of Poling Conditions on Responsivity and Uniformity of Polarization of PVF2 Pyroelectric Detectors;
Day, G. W.; Hamilton, C. A.; Peterson, R. L.; Phelan, R. J., Jr; Mullen, L. O.
Appl. Phys. Lett. 24:456-458; May 74.

Absolute, Pyroelectric Radiometers and Two Dimensional Arrays;
Phelan, R. J., Jr; Peterson, R. L.; Klein, G. P.; Hamilton, C. A.; Day, G. W.
Proc. American Electro-Optical Systems Design Conf., New York, NY, p 117-123; 73.

Comparison of the Laser Power and Total Irradiance Scales Maintained by the National Bureau of Standards;
Geist, Jon; Schmidt, L. B.; Case, W. E.
Appl. Opt. 12:2773-2776; Nov 73.

Electrically Calibrated Pyroelectric Optical-Radiation Detector;
Phelan, Robert J., Jr; Cook, A. R.
Appl. Opt. 10:2494-2500; Oct 73.

Continuous Laser-Sustained Plasmas;
Franzen, D. L.
J. Appl. Phys. 44:1727-1732; Apr 73.

Limitations of the Use of Vacuum Photodiodes in Instruments for the Measurement of Laser Power and Energy;
Smith, R. L.; Phelan, R. J., Jr.
Appl. Opt. 12:795-798; Apr 73.

Accurate Frequencies of Molecular Transitions Used in Laser Stabilization: The 3.39-micrometer Transition in CH4 and the 9.33- and 10.18-micrometer Transitions in CO2;
Evenson, K. M.; Wells, J. S.; Peterson, F. R.; Danielson, B. L.; Day, G. W.
Appl. Phys. Lett. 22:192-195; Feb 73.

A Calorimeter for High Power CW Lasers;
Smith, R. L.; Case, W. E.; Rasmussen, A. L.; Russell, T. W.; West, E. D.
Proc. Conf. on Precision Electromagnetic Measurements, Jun 26-29, 1972;
Boulder, CO, p 138-139; 72.

High D*, Fast, Lead Zirconate Titanate Pyroelectric Detectors;
Mahler, R. J.; Phelan, R. J., Jr; Cook, A. R.
Infrared Phys. 12:57-59; 72.

A Calorimeter for High-Power CW Lasers;
Smith, R. L.; Russell, T. W.; Case, W. E.; Rasmussen, A. L.
IEEE Trans. Instrum. Meas. IM-21:434-8; Nov 72.

Speed of Light from Direct Frequency and Wavelength Measurements of the Methane-Stabilized Laser;
Evenson, K. M.; Wells, J. S.; Petersen, F. R.; Danielson, B. L.; Day, G. W.
Phys. Rev. Lett. 29:1346-1349; Nov 72.

CW Gas Breakdown in Argon Using 10.6 Micrometer Laser Radiation;
Franzen, Douglas L.
Appl. Phys. Lett. 21:62-64; Jul 72.

Role of Infrared Frequency Synthesis in Metrology;
Wells, J. S.; Evenson, K. M.; Day, G. W.; Halford, Donald
Proc. IEEE Lett. 60:621-623; May 72.

Gain Saturation Measurements in CO2, TEA Amplifiers;
Franzen, Douglas L.; Jennings, Donald A.
J. Appl. Phys. 43:729-730; Feb 72.

Double Plate Calorimeter for Measuring the Reflectivity of the Plates and the Energy in a Beam of Radiation;
Rasmussen, Alvin L.
PATENT-3 622 245; patented 23 Nov 71.

High D* Pyroelectric Polyvinylfluoride Detectors;
Phelan, Robert J., Jr; Mahler, Robert J.; Cook, Alan R.
Appl. Phys. Lett. 19:337-338; Nov 71.

Measurement of Laser Energy of Linear Components of Polarization at 1.060 micron;
Rasmussen, A. L.
Rev. Sci. Instrum. 42:1590-1593; Nov 71.

Linear and Nonlinear Optical Properties of Trigonal Selenium;
Day, G. W.
Appl. Phys. Lett. 18:347-349; Apr 71.

Extension of Absolute Frequency Measurements to the cw He-Ne Laser at 88 THz (3.39 micrometer);
Evenson, K. M. ; Day, G. W. ; Wells, J. S. ; Mullen, L. O.
Appl. Phys. Lett. 20:133-134; Feb 71.

Some Optical Properties of Cesium Cupric Chloride;
Day, G. W.; Gruzensky, P. M.
Appl. Opt. 9:2494-2795; 70.

Laser Power and Energy Measurements;
Jennings, D. A.; West, E. D.; Evenson, K. M.; Rasmussen, A. L.; Simmons, W. R.
NBS TN 382; Oct 69.

InSb-GaAsP Infrared to Visible Light Converter;
Phelan, Robert J., Jr.
Proc. IEEE 55:1505-1502; Aug 67.

InSb MOS Infrared Detector;
Phelan, R. J., Jr.; Dimmock, J. O.
Appl. Phys. Lett. 10:55-7; Jan 67.

Incoherent Source Optical Pumping of Visible and Infrared Semiconductor Lasers;
Phelan, Robert J., Jr.
Proc. IEEE 54:1119-20; Aug 66.

Laser Emission by Optical Pumping of Semiconductors;
Phelan, R. J., Jr.
Proc. Quantum Electronics Conf., p 435-441; Jul 65.

ELECTROMAGNETIC WAVEFORM METROLOGY

Reference Waveform Flat Pulse Generator;
Andrews, J.; Bell, B.; Nahman, N. S.; Baldwin, E. E.
Proc. CPEM 1982 in IEEE Trans. Instrum. Meas. IM-32(1):27-32; Mar 83.

Reference Waveform Flat Pulse Generator;
Andrews, J. R.; Bell, B. A.; Nahman, N. S.; Baldwin, E. E.
1982 CPEM Conf. Digest; Jun 82.

Deconvolution of Time Domain Waveforms in the Presence of Noise;
Nahman, N. S.; Guillaume, M. E.
NBS TN 1047; Oct 81.

Shielded Balanced and Coaxial Transmission Lines - Parametric Measurements and Instrumentation Relevant to Signal Waveform Transmission in Digital Service;
Gans, W. L.; Nahman, N. S.
NBSIR 81-1042; Jun 81.

Amplitude Calibrator for Oscilloscopes;
Andrews, J. R.; Baldwin, E. E.
NBSIR 81-1646; Apr 81.

Error Criteria and the Use of Reference Waveforms;
Nahman, N. S.
Electron. Test 4(2):72-76; Feb 81.

Instrument Modeling and Deconvolution Improve Time Domain Calibrations;
Nahman, N. S.; Andrews, J. R.
NBS Dimensions, p 21-23; Jan/Feb 81.

Deconvolution of Duration Limited Waveforms;
Nahman, N. S.; Guillaume, M. E.
Digest of Papers, URSI/U.S. National Radio Science Meeting, Boulder, CO, p 86; Jan 81.

Error Criteria and the Use of Reference Waveforms;
Nahman, N. S.
Proc. ATE Seminar/Exhibit, Pasadena, CA, Jan 1981, Benwill Publications, Boston, MA, p IV.21-IV.28; Jan 81.

Pulse Reference Waveform Standards Development at NBS;
Andrews, J. R.
Proc. ATE Seminar/Exhibit, Pasadena, CA, Jan 1981, Benwill Publications, Boston, MA, p IV.13-IV.19; Jan 81.

The Estimation of the Pulse Waveform in the Calibration of Impulse Generators;
Andrews, J. R.
Digest of Papers, URSI/U.S. National Radio Science Meeting, Boulder, CO, p 87; Jan 81.

Applications of Time Domain Methods to Microwave Measurements;
Nahman, N. S.; Andrews, J. R.; Gans, W. L.; Guillaume, M. E.; Lawton, R. A.; Ondrejka, A. R.; Young, M.
IEE Proc. (Microwaves, Optics, and Acoustics) Special Issue on Microwave Measurements 127, Part H(2):171-178; Apr 80.

A Superconducting Sampler for Josephson Logic Circuits;
Hamilton, C.; Lloyd, F.; Peterson, R.; Andrews, J. R.
Appl. Phys. Lett. 35(9):718-719; Nov 79.

A Video Recorder for Coherent Doppler Radar;
Wharton, M. J.; Frush, C. L.; Nahman, N. S.
IEEE Trans. Geosci. Electron., Special Issue on Radio Meteorology, GE-17(4):171-178; Oct 79.

Time Domain Pulse Measurements and Computed Frequency Responses of Optical Communications Components;
Andrews, J. R., Young, M.
NBSIR 1620; Sep 79.

Radar Absorber Measurement Techniques at Frequencies above 20 GHz;
Nahman, N. S.; Allred, C. M.; Andrews, J. R.; Hoer, C. A.; Lawton, R. A.
NBSIR 1613; Aug 79.

Picosecond Domain Waveform Measurements (Japanese translation);
Nahman, Norris S.
Nikkei Electronics, Tokyo Japan: Nikkei-McGraw Hill, Inc.; Apr 79.

Measurement of Pulsed-Laser Power;
Young, M.; Lawton, R. A.
NBS TN 1010; Feb 79.

Antennas and the Associated Time Domain Range for the Measurement of Impulsive Fields;
Lawton, Robert A.; Ondrejka, Arthur R.
NBS TN 1008; Nov 78.

Applications of the Homomorphic Transformation to Time Domain Measurement Problems;
Riad, Sedki M.; Nahman, Norris S.
NBSIR 78-881; Jun 78.

SHF Impulse Generator;
Andrews, James R.; Baldwin, Eugene E.
NBSIR 78-888; Jun 78.

Broadband Isotropic Antenna with Fiber-Optic Link to a Conventional Receiver;
Larsen, Ezra B.; Andrews, James R.; Baldwin, Eugene E.
PATENT-4 091 327; patented 23 May 78.

Automatic Network Measurements in the Time Domain;
Andrews, James R.
Proc. IEEE 66:414-423; Apr 78.

Picosecond-Domain Waveform Measurements;
Nahman, Norris S.
Proc. IEEE 66, 441-454; Apr 78.

Saturation of Silicon Photodiodes at High Modulation Frequency;
Young, M.; Lawton, R. A.
Appl. Opt. 17:1103-1106; 1 Apr 78.

Measurement on Pulses and Pulse Transmission Media, Circuits and Components;
Andrews, J. R.
URSI Review of Radio Science, p 9; 1975-1977.

Application of a Automated Pulse Measurement System To Telecommunications Measurements;
Gans, W.; Andrews, J. R.; Riad, S.; Çozannet, A.; Debeau, J.
Collogue International sur la Measure en Telecommunications, URSI, CNET, Oct 3-7, 1977; Lannion, France, p 165-170; 77.

Saturation of Optical Detectors at High Modulation Frequency;
Young, M.; Lawton, R. A.
Proc. Annual Meeting Optical Society of America, Oct 12, 1977; Toronto, Canada, J. Opt. Soc. Am. 67:1398; 77.

Signal Waveform Metrology at NBS;
Nahman, Norris S.
Proc. WESCON/77, Electronics at the Golden Gate, Sep 19-21, 1977; San Francisco, CA; 77.

Standards for the Measurement of Impulsive Fields Radiated by a TEM Horn Antenna;
Lawton, Robert A.; Ondrejka, Arthur R.
Proc. Union Radio Scientifique International Comm. Symp., Oct 3-7, 1977; Lannion, France, p 1-4; Dec 77.

The Measurement of Pulse Transition Duration;
Andrews, James R.; Nahman, Norris S.
Proc. Union Radio Scientifique Internationale Comm. Symp., Oct 3-7, 1977; Lannion, France, p 159-164; Dec 77.

Laser-Mode Beating Used for Detector Frequency-Response Measurements;
Lawton, R. A.; Young, M.
Appl. Opt. 16:2703-2705; Oct 77.

Waveform Sampler;
Lawton, Robert A.; Andrews, James R.
PATENT-4 030 840; patented 21 Jun 77.

Application of the Homomorphic Deconvolution for the Separation of TDR Signals Occurring in Overlapping Time Windows;
Riad, Sedki M.; Nahman, Norris S.
CPEM Digest, p 27-29; 76.

Impulse Generator Spectrum Amplitude Measurement Techniques;
Andrews, James R.
CPEM Digest, p 23-24; 76.

Present Capabilities of the NBS Automatic Pulse Measurement System;
Gans, William L.
CPEM Digest, p 25-26; 76.

Using Fiber Optics in a Broadband, Sensitive, Isotropic Antenna - 15 kHz to 150 MHz;
Larsen, E. B.; Andrews, J. R.
Proc. IEEE International Symposium on Electromagnetic Compatability, Jul 13-15 1976; Washington, DC, p 385-389; 76.

Application of the Homomorphic Deconvolution for the Separation of TDR Signals Occurring in Overlapping Time Windows;
Riad, Sedki M.; Nahman, Norris S.
IEEE Trans. Instrum. Meas. IM-25:388-391; Dec 76.

Impulse Generator Spectrum Amplitude Measurement Techniques;
Andrews, James R.
IEEE Trans. Instrum. Meas. IM-25:380-384; Dec 76.

Present Capabilities of the NBS Automatic Pulse Measurement System;
Gans, William L.
IEEE Trans. Instrum. Meas. IM-25:384-388; Dec 76.

Electrical Strobing of a Photoconductor Cuts Sampling Oscilloscope's Risetime;
Lawton, Robert A.; Andrews, James R.
Laser Focus, p 62-65; Nov 76.

Sensitive Isotropic Antenna with Fiber-Optic Link to a Conventional Receiver;
Larsen, E. B.; Andrews, J. R.; Baldwin, E. E.
NBSIR 75-819; Sep 76.

Andrews, James R.
PATENT-3 967 140; patented 29 Jun 76.

Electrically Strobed Optical Waveform Sampling Oscilloscope;
Andrews, James R.; Lawton, Robert A.
Rev. Sci. Instrum. 47:311-313; Mar 76.

Optically Strobed Sampling Oscilloscope;
Lawton, Robert A.; Andrews, James R.
IEEE Trans. Instrum. Meas. 25:56-60; Mar 76.

Baseband Impulse Generator Useful to 5 GHz;
Andrews, James R.; Baldwin, Eugene E.
Proc. 1975 IEEE Int. Symp. on Electromagnetic Compatibility, Oct 7-9, 1975; San Antonio, TX, p 1-4; 75.

Picosecond Pulse Research at NBS;
Andrews, James R.; Lawton, Robert A.
Proc. Joint Measurement Conf., Nov 12-14, 1974; Gaithersburg, MD, p 123-140; 75.

Time Domain Automatic Network Analyzer;
Andrews, J. R.; Gans, William L.
Proc. Colloque International sur L'Electronique et la Mesure, May 26-30, 1975; Paris, France, La Mesure Electriquede Precision, p 258-267; 75.

Time Domain Automatic Network Analyzer;
Andrews, J. R.; Gans, W. L.
L'Onde Electrique, Paris, France, 55(10):569-574; Dec 75.

Directional-Coupler Technique for Triggering a Tunnel Diode;
Andrews, James R.
IEEE Trans. Instrum. Meas. IM-24:275-277; Sep 75.

Time Domain Automatic Network Analyzer for Measurement of RF and Microwave Components;
Gans, William L.; Andrews, James R.
NBS TN 672; Sep 75.

Pulsed-Laser Application to Sampling Oscilloscope;
Lawton, Robert A.; Andrews, James R.
Electron. Lett. 11:138; Apr 75.

Pulsed Wavemeter Timing Reference for Sampling Oscilloscope Calibration;
Andrews, James R.; Gans, William L.
IEEE Trans. Instrum. Meas. IM-24:82; Mar 75.

Photoconductive Detector of Fast-Transition Optical Waveforms;
Lawton, R. A.; Scavannec, A.
Electron. Lett. 11:74-75; Feb 75.

Application of Ultrashort Optical Pulses to Electrical Pulse Measurements;
Honda, T.; Nahman, N. S.
Proc. Symposium on New Instrumentation, Jan 28-29, 1974; IEE of Japan, Hokkaido University, p 29-38; 74.

Precision Picosecond-Pulse Measurements Using a High Quality Superconducting Delay Line;
Andrews, James R.
Proc. Conf. on Precision Electromagnetic Measurements, Jul 1-5, 1974; London, England; Abstract in CPEM Digest, London: IEE; p 316-318; 74.

Precision Picosecond-Pulse Measurements Using a High-Quality Superconducting Delay Line;
Andrews, James R.
IEEE Trans. Instrum. Meas. IM-23:468-472; Dec 74.

Picosecond Pulse Generators Using Microminiature Mercury Switches;
Andrews, James R.
NBSIR 74-377; Mar 74.

Active and Passive Mode Locking of Continuously Operating Rhodamine 6G Dye Lasers;
Scavennec, Andre; Nahman, N. S.
NBSIR 73-347; Feb 74.

Inexpensive Laser Diode Pulse Generator for Optical Waveguide Studies;
Andrews, James R.
Rev. Sci. Instrum. 45:22-24; Jan 74.

A Simple Passively Mode-Locked CW Dye Laser;
Scavennec, Andre; Nahman, Norris S.
IEEE J. Quantum Electron. QE-10:95-96; Jan 74.

Autocorrelation and Power Measurement with Pyroelectric and Dielectric Bolometers;
Lawton, Robert A.
IEEE Trans. Instrum. Meas. IM-22:299-306; Dec 73.

Random Sampling Oscilloscope for the Observation of Mercury Switch Closure Transition Times;
Andrews, James R.
IEEE Trans. Instrum. Meas. IM-22:375-381; Dec 73.

Frequency Domain Measurement of Baseband Instrumentation;
Nahman, N. S.; Jickling, R. M.
NBSIR 73-330; Jul 73.

Pulse Testing of RF and Microwave Components;
Gans, William L.; Nahman, N. S.
NBSIR 73-325; Jul 73.

Random Sampling Oscilloscope Time Base;
Andrews, James R.
NBSIR 73-309; Jun 73.

A Note on the Transition (Rise) Time Versus Line Length in Coaxial Cables;
Nahman, Norris S.
IEEE Trans. Circuit Theory CT-20:165-167; Mar 73.

Miniature Superconductive Coaxial Transmission Lines;
Nahman, Norris S.
Proc. IEEE 61:76-79; Jan 73.

Coaxial Line Pulse-Response Error Due to a Planar Skin Effect Approximation;
Holt, D. R.; Nahman, N. S.
Proc. 1972 Conf. on Precision Electromagnetic Measurement, Jun 26-29, 1972; Boulder, CO; p 1-2; 72.

Fast Fourier Transform Implementation for the Calculation of Network Frequency Domain Transfer Functions from Time Domain Waveforms;
Gans, William L.; Nahman, N. S.
NBSIR 73-303; Dec 72.

Reference-Waveform Generation Using Debye Dielectric Dispersion;
Nahman, N. S.; Jickling, R. M.; Holt, D. R.
NBSIR 73-304; Dec 72.

Coaxial-Line Pulse-Response Error Due to a Planar Skin-Effect Approximation;
Holt, D. R.; Nahman, N. S.
IEEE Trans. Instrum. Meas. IM-21:515-519; Nov 72.

A Dye Modelocked Nd^{+3} Glass Laser for Generating Electrical Reference Waveforms;
Honda, T.; Nahman, N. S.
NBSIR 74-360; Sep 72.

Transient Analysis of Coaxial Cables Using the Skin Effect Approximation A + B(the square root of s);
Nahman, N. S.; Holt, D. R.
IEEE Trans. Circuit Theory CT-19:443-451; Sep 72.

Measurement of Laser Pulse Dispersion in Glass Fiber Optical Waveguides;
Andrews, J. R.
NBS Memo for the Record; Jul 72.

Measurement of Broadening of Pulses in Glass Fibers;
Bouille, R.; Andrews, J. R.
Electron. Lett. 8:309-310; Jun 72.

Pyroelectric Detector Application to Baseband Pulse Measurements;
Lawton, Robert A.; Nahman, N. S.
Electron. Lett. 8:318-320; Jun 72.

A Frequency Calibrator for UHF Using an Avalanche Transistor;
Andrews, James R.
Q S T 56:16-18; May 72.

Survey of Present Waveform Sampling System Limitations;
Andrews, J. R.; Whittemore, T.; McCaa, W. D.
NBS Report 10-731; Feb 72.

Electron-Beam Deflection in Traveling-Wave Oscilloscopes;
Andrews, James R.; Nahman, N. S.
Record of Symposium on Electron, Ion, and Laser Beam Technology (11th), May 12-14, 1971; Boulder, CO; 71.

An Interfacing Unit for a 28 psec Feedthrough Sampling Oscilloscope;
Andrews, J. R.
Rev. Sci. Instrum. 42:1882-1885; Dec 71.

Horizontal Time Base Sweep Generator for a Traveling Wave Oscilloscope;
Andrews, James R.
IEEE Trans. Nucl. Sci. NS-18:3-8; Oct 71.

The Measured Time and Frequency Response of a Miniature Superconducting Coaxial Line;
Ekstrom, M. P.; McCaa, W. D. Jr; Nahman, N. S.
IEEE Trans. Nucl. Sci. NS-18:18-25; Oct 71.

Generation of Reference Waveforms by Uniform Lossy Transmission Lines;
McCaa, W. D.; Nahman, N. S.
IEEE Trans. Instrum. Meas. IM-19:382-390; Nov 70.

Improved Bias Supply for Tunnel-Diode Picosecond Pulse Generators;
Andrews, J. R.
IEEE Trans. Instrum. Meas. IM-19:171-175; Aug 70.

Measured Time and Frequency Response of a Miniature Superconducting Coaxial Line;
Nahman, N. S.; Ekstrom, M. P.; McCaa, W. D., Jr.
Applied Superconductivity Conf., Boulder, CO; Jun 70.

Deflection Theory of Traveling Wave Oscilloscopes;
Andrews, J. R.
PhD Dissertation, Univ. of Kansas; Apr 1970. Also NBS Memo for the Record.

Tunnel Diode Pulse Generator and Bias Supply;
Andrews, J. R.
NBS Memo for the Record; Aug 69.

Frequency and Time Domain Analysis of A Superconductive Coaxial Line Using the BCS Theory;
McCaa, W. D.; Nahman, N. S.
J. Appl. Phys. 40:2098-2099; Apr 69.

A Digital Computer Technique for Calculating the Step Response of Lumped or Distributed Networks;
Andrews, J. R.; Nahman, N. S.
NBS JRES, Sec. B, p 163-176; April-June 69.

Investigation and Evaluation of Methods for Pulse Rise-Time Measurement;
Hudson, P.; Andrews, J. R.; Blank, W.; Ondrejka, A.
Tech Report RADC-TR-68-207; Oct 68.

The Measurement of Baseband Pulse Rise-Times of Less than 10^{-9} Seconds;
Nahman, N. S.
Proc. IEEE 55:855-864; Jun 67.

Random Sampling Oscillography;
Frye, G. J., and Nahman, N. S.
IEEE Trans. Instrum. Meas. IM-13:8-13; Mar 64.

CRYOELECTRONIC METROLOGY

Cryogenics;
Zimmerman, J. E.
Chapt. 3 in Biomagnetism: an Interdisciplinary Approach, Samuel J. Williamson, et al., eds., NATO Advanced Study Institute Publication, vol. 66, p 43-67, New York: Plenum Press; 83.

Magnetic Quantities, Units, Materials, and Measurements;
Zimmerman, J. E.
Chapt. 2 in Biomagnetism: an Interdisciplinary Approach, Samuel J. Williamson, et al., eds., NATO Advanced Study Institute Publication, vol. 66, p. 17-42, New York: Plenum Press; 83.

A Cryocooler for Applications Requiring Low Magnetic and Mechanical Interference;
Zimmerman, J. E.; Daney, D. E.; Sullivan, D. B.
NASA Pub. 2287, p 95-106; Dec 83.

An Approach to Optimization of Low-Power Stirling Cryocoolers;
Sullivan, D. B.
Proc. 2nd Biennial Conf. Refrigeration for Cryogenic Sensors; Dec. 7-8, 1982, Greenbelt, MD; NASA Conf. Publ. 2287, p 95-106; Dec 83.

Summary of the Proceedings of the 2nd Biennial Conf. Refrigeration for Cryogenic Sensors;
Zimmerman, J. E.
Cryogenics 23(5):281-282; May 1983.

Chaos in Josephson Circuits;
Kautz, R. L.
Proc. Applied Superconductivity Conf., IEEE Trans. Magn. MAG-19(3):465-473; May 83.

Double Transformer Coupling to a Very Low Noise SQUID;
Cromar, M.; Muhlfelder, B.
Proc. Applied Superconductivity Conf., IEEE Trans. Magn. MAG-19(3):303-307; May 83.

8-Bit Superconducting A/D Converter;
Hamilton, C. A.; Lloyd, F. L.
Proc. Applied Superconductivity Conf., IEEE Trans. Magn. MAG-19(3)1259-1261; May 83.

Microwave Mixing and Direct Detection Using SIS and SIS' Quasiparticle Tunnel Junctions;
Harris, R. E., et al.
Proc. Applied Superconductivity Conf., IEEE Trans. Magn. MAG-19(3):490-493; May 83.

100 GHz Binary Counter Using SQUID Flip Flops;
Hamilton, C. A.
Proc. Applied Superconductivity Conf., IEEE Trans. Magn. MAG-19(3):1291-1291; May 83.

Operation of a Superconducting Analog-to-Digital Converter at Short Conversion Times;
Kautz, R. L.
Proc. Applied Superconductivity Conf., IEEE Trans. Magn. MAG-19(3):1186-1189; May 83.

Superconducting Current Injection Transistor;
VanZeghbroeck, B. J., (Guest Worker)
Appl. Phys. Lett. 42(8):736-738; Apr 83.

Voltage and Current Expressions for a Two-Junction Superconducting Interferometer;
Peterson, R. L.; McDonald, D. G.
J. Appl. Phys. 54(2):992-996; Feb 83.

100 GHz Binary Counter Based on DC SQUIDs;
Hamilton, C. A.
IEEE Electron Device Lett. EDL-3(11):335-338; Nov 82.

Electronically Adjustable Delay for Josephson Technology;
Harris, R. E.; Wolf, P.; Moore, D. F.
IEEE Electron Device Lett. EDL-3(9); Sep 82.

High-Speed, Low-Crosstalk Chip Holder for Josephson Integrated Circuits;
Hamilton, C. A.
IEEE Trans. Instrum. Meas. IM-31(2):29; Jun 82.

Book review: Principles of Superconductive Devices and Circuits, by T. Van Duzer and C. W. Turner;
McDonald, D. G.; Clark, A. F.
Physics Today, p 80; Feb 82.

Analog measurement applications for high speed Josephson switches;
Hamilton, C. A.; Lloyd, Frances L.; Kautz, R. L.
IEEE Trans. Magn. MAG-17(1):577-82; Jan 82.

A Study of Design Principles for Refrigerators for Low-Power Cryoelectronic Devices;
Zimmerman, J. E.; Sullivan, D. B.
NBS TN 1049; Jan 82.

A Josephson Voltage Standard Using a Series Array of 100 Junctions;
Kautz, R. L.; Costabile, G.
IEEE Trans. Magn. MAG-17, 780; 81.

Magnetic Auditory Evoked Fields: Interhemispheric Asymmetry;
Reite, M.; Zimmerman, J. T.; Zimmerman, J. E.
Electroencenphalography and Clinical Neurophysiology 51:388-392; 81.

Superconducting Electronics;
McDonald, D. G.
Phys. Today 34:36-47; 81.

Mathematical Modelling of the Impedance of a Josephson Junction Noise Thermometer;
Peterson, R. L.
J. Appl. Phys., 52(12):7321-7326; Dec 81.

Design Limitations for Superconducting A/D Converters;
Hamilton, C. A.; Lloyd, F. L.
IEEE Trans. Magn. MAG-17(6):3414-3419; Nov 81.

Chaotic States of rf-Biased Josephson Junctions;
Kautz, R. L.,
J. Appl. Phys. 52(10):6241-6246; Oct 81.

Modelling the Impedance of a Josephson Junction Noise Thermometer;
Peterson, R. L.; Van Vechten, D.
Phys. Review B 24(6):3588-3591; Sep 81.

Low Noise Tunnel Junction dc SQUIDs;
Cromar, M. W.; Carelli, P.
Appl. Phys. Lett. 38(9):723-725; May 81.

Measurement of Thermal Properties of Cryocooler Materials;
Zimmerman, J. E.; Sullivan, D. B.; Kautz, R. L.; Hobbs, R. D.
Proc. Conf. on Refrigeration for Cryogenic Sensors and Electronic Systems, NBS SP 607, p 173-177; May 81.

Operation of a practical SQUID Gradiometer in a Low-power Stirling Cryocooler;
Sullivan, D. B.; Zimmerman, J. E.; Ives, J. T.
Conf. on Refrigeration for Cryogenic Sensors and Electronic Systems, NBS SP 607, p 186-194; May 81.

Refrigeration for Cryogenic Sensors and Electronic Systems;
Zimmerman, J. E.; Sullivan, D. B.; McCarthy, S. M., eds.
NBS SP 607; May 81.

The ac Josephson Effect in Hysteric Junctions: Range and Stability of Phase Lock;
Kautz, R. L.
J. Appl. Phys. 52(5):3528-3541; May 81.

Analog Measurement Applications for High Speed Josephson Switches;
Hamilton, C. A.; Lloyd, F. L.; Kautz, R. L.
IEEE Trans. Magn. MAG 17(1):577-582; Jan 81.

Behavior of the dc Impedance of an rf-Biased Resistive SQUID;
Van Vechten, D.; Soulen, R. J., Jr.; Peterson, R. L.
Proc. 2nd Int. Conf. on Superconducting Quantum Interference Devices (SQUIDs), H. D. Wahlbohm; H. Lubbig, eds. New York, Berlin: Walter de Gruyter & Co., p 569-584; 80.

Cryogenics for SQUIDs;
Zimmerman, J. E.
Proc. 2nd Int. Conf. on Superconducting Quantum Interference Devices (SQUIDs), H. D. Wahlbohm; H. Lubbig, eds. New York, Berlin: Walter de Gruyter & Co., p 423-443; 80.

Recent Progress in Cryoelectronics;
Sullivan, D. B.; Hamilton, C. A.; Kautz, R. L.
IEEE Trans. Instrum. Meas. IM-29:319; 80.

Space Applications of Superconductivity: Digital Electronics;
Harris, R. E.
Cryogenics 20:115; 80.

Transient Pool Boiling of Liquid Helium Using a Temperature Controlled Heater Surface;
Giarratano, P. J.; Frederick, N. V.
Advances in Cryogenic Engineering, K. D. Timmerhaus; H. A. Synder, eds., New York: Plenum Press, 25:455-466; 80.

Turn-on Delays in Single Josephson Junction Devices;
Peterson, R. L.
Proc. 2nd Int. Conf. on Superconducting Quantum Interference Devices (SQUIDs), H. D. Wahlbohm; H. Lubbig, eds. New York, Berlin: Walter de Gruyter & Co., p 685-702; 80.

Picosecond Applications of Josephson Junctions;
McDonald, D. G.; Peterson, R. L.; Hamilton, C. A.; Harris, R. E.; Kautz, R. L.
IEEE Trans. Electron Devices ED-27(10):1945-1965; Oct 80.

Induced Electronic Currents in the Alaska Oil Pipeline Measured by Gradient Fluxgate and SQUID Magnetometers;
Campbell, W. H.; Zimmerman, J. E.
IEEE Trans. Geosci. and Remote Sensing GE-18(3):244-250; Jul 80.

Cryocoolers for Geophysical SQUID Magnetometers;
Zimmerman, J. E.
Proc. SQUID Geophysics Workshop, Los Alamos, NM; Jun 80.

Space Applications of Superconductivity: Instrumentation for Gravitational and Related Studies;
Peterson, R. L.
Cryogenics, p 299-306; Jun 80.

A Superconducting 6-bit Analog-to-Digital Converter with Operation to 2 x 10^9 Samples/Second;
Hamilton, C. A.; Lloyd F. L.
IEEE Electron Device Lett. EDL-1(5):92-94; May 80.

Conversion Gain in mm-wave Quasiparticle Heterodyne Mixers;
Shen, T. M.; Richards, P. L.; Harris, R. E.; Lloyd, F. L.
Appl. Phys. Lett. 36:777-779; May 80.

Space Applications of Superconductivity: Microwave and Infrared Detectors;
Hamilton, C. A.,
Cryogenics, p 235-243; May 80.

On a Proposed Josephson-Effect Voltage Standard at Zero Current Bias;
Kautz, R. L.
Applied Phys. Lett. 36(5):386-388; Mar 80.

Simple-Heating-Induced Josephson Effects in Quasiparticle-Injected Superconducting Weak Links;
Kaplan, S. B.
J. Appl. Phys. 51(3):1682-1685; Mar 80.

Superconductor Insulator-Superconductor Quasiparticle Junctions as Microwave Photon Detectors;
Richards, P. L.; Shen, T. M.; Harris, R. E.; Lloyd, F. L.
Appl. Phys. Lett. 36:480-482; Mar 80.

Space Applications of Superconductivity: Low Frequency Superconducting Sensors;
Zimmerman, J. E.
Cryogenics, p 3-10; Jan 80.

Acoustic Matching of Superconducting Films to Substrates;
Kaplan, S. B.
J. Low Temp. Phys. 37:343-365; 79.

A Milliwatt Stirling Cryocooler for Temperatures below 4 K;
Zimmerman, J. E.; Sullivan, D. B.
Cryogenics 19:170; 79.

Minituarization of Normal-State and Superconducting Strip-Lines;
Kautz, R. L.
NBS JRES 84:247; 79.

Quasiparticle Heterodyne Mixing in SIS Tunnel Junctions;
Richards, P. L.; Shen, T. M.; Harris, R. E.; Lloyd, F. L.
Appl. Phys. Lett. 34:345; 79.

Superconducting Devices;
Zimmerman, J. E.; Sullivan, D. B.
Yearbook of Science and Technology, McGraw-Hill; 79.

Analysis of Threshold Curves for Superconducting Interferometers;
Peterson, R. L.; Hamilton, C. A.
J. Appl. Phys. 50(12):8135-8142; Dec 79.

A Superconducting Sampler for Josephson Logic Circuits;
Hamilton, C. A.; Lloyd, F. L.; Peterson, R. L.; Andrews, J. R.
Appl. Phys. Lett. 35:718; Nov 79.

Multiple-Quantum Interference Superconducting Analog-to-digital Converter;
Harris, R. E.; Hamilton, C. A.; Lloyd, F. L.
Appl. Phys. Lett. 35:720; Nov 79.

Space Applications of Superconductivity;
Sullivan, D. B.; Vorreiter, J. W.
Cryogenics 19:627-631; Nov 79.

Very Low-power Stirling Cryocoolers Using Plastic and Composite Materials;
Sulllivan, D. B.; Zimmerman, J. E.
Int. J. Refrig. 2:211-213; Nov 79.

Differential Capacitance Sensor as Position Detectors for Magnetic Suspension Densimeter;
Frederick, N. V.
Rev. Sci. Instrum. 50(9):1154; Sep 79.

Analog to Digital Conversion with a SQUID: Conditions for a Countable Pulse Train;
Peterson, R. L.
J. Appl. Phys. 50:4231; Jun 79.

Cryogenic Refrigeration System;
Zimmerman, James E.
PATENT-4 143 520; patented 13 Mar 79.

Quasiparticle Heterodyne Mixing in SIS Tunnel Junctions;
Harris, R. L.; Lloyd, F. L.; Richards, P. L.; Shen, T. M.
Appl. Phys. Lett. 34(5):345-347; Mar 79.

Sampling Circuit and Method Therefor;
Hamilton, Clark A.
PAT-APPL-6-020 359; Filed 14 Mar 79.

Attenuation in Superconducting Striplines;
Kautz, R. L.
IEEE Trans. Magn. MAG-15:566-569; Jan 79.

High-Speed Superconducting Electronics;
Hamilton, C. A.; Harris, R. E.; Sullivan, D. B.
GOMAC Digest, vol. 7; 78.

Human Magnetic Auditory Evoked Responses;
Reite, M.; Edrich, J.; Zimmerman, J. T.; Zimmerman, J. E.
Electroencephalography and Clinical Neurophysiology 45:114-117; 78.

Magnetic Phenomena of the Central Nervous System;
Reite, Martin; Zimmerman, James
Ann. Rev. Biophys. Bioeng. 7:167-188; 78.

Multiple Magnetic Flux Entry into SQUIDS: A General Way of Examining the Cos(phi) Conductance;
Peterson, R. L.; Gayley, R. I.
Phys. Rev. B 18:1198-1206; Aug 78.

Automatic 300-4 K Temperature Cycling Apparatus;
Hamilton, Clark A.
Rev. Sci. Instrum. Notes 49:674-677; May 78.

The Role of Superconductivity in the Space Program: An Assessment of Present Capabilities and Future Potential;
Sullivan, D. B.
NASA-CR-158701; NBSIR 78-885; May 78.

The Role of Superconductivity in the Space Program: An Assessment of Present Capabilities and Future Potential;
Sullivan, D. B.
NBSIR 78-885; May 78.

Applications of Closed-Cycle Cryocoolers to Small Superconducting Devices;
Zimmerman, James E.; Flynn, Thomas M.
Proc. Conf. Held at the National Bureau of Standards, Oct 3-4, 1977; Boulder, CO, NBS SP 508; Apr 78.

RF Instrumentation Based on Superconducting Quantum Interference;
Sullivan, D. B.; Adair, R. T.; Frederick, N. V.
Proc. IEEE 66:454-463; Apr 78.

Photolithographic Fabrication of Lead Alloy Josephson Junctions;
Havemann, R. H.; Hamilton, C. A.; Harris, Richard E.
J. Vac. Sci. Technol. 15:392-395; Mar/Apr 78.

Picosecond Pulses on Superconducting Striplines;
Kautz, Richard L.
J. Appl. Phys. 49:308-314; Jan 78.

Possible Cryocoolers for SQUID Magnetometers;
Zimmerman, J. E.; Radebaugh, R.; Siegwarth, J. D.
Proc. IC SQUID (1st), Oct 5-8, 1976; Berlin, Germany, Paper R-1044 in Superconducting Quantum Interference Devices and Their Applications, p 287-296; 77.

Results, Potentials and Limitations of Josephson Mixer-Receivers at Millimeter and Long Submillimeter Wavelengths;
Edrich, J.; Sullivan, D. B.; McDonald, D. G.
IEEE Trans. Microwave Theory Tech. MTT-25:476; 77.

RF Power Measurements Using Quantum Interference in Superconductors;
Sullivan, D. B.; Frederick, N. V.; Adair, R. T.
Proc. IC SQUID (1st), Oct 5-8, 1976; Berlin, Germany, Paper R-1045 in Superconducting Quantum Interference Devices and Their Applications, p 355-363; 77.

Superconducting Devices for Metrology and Standards;
Kamper, Robert A.
Chap. 5 in Superconductor Applications: Squids and Machines, New York: Plenum Press, p 189-247; 77.

Design of a Josephson-Junction Picosecond Pulser;
McDonald, D. G.; Peterson, R. L.; Bender, B. K.
J. Appl. Phys. 48:5366-5369; Dec 77.

Numerical Evaluation of the Response of a Josephson Tunnel Junction in an Arbitrary Circuit;
Harris, Richard E.
J. Appl. Phys. 48:5188-5190; Dec 77.

Picosecond Pulse Generator Utilizing a Josephson Junction;
McDonald, Donald G.; Peterson, Robert L.
PAT-APPL-862 311; Filed 20 Dec 77.

A Sampling Circuit and Method Therefor;
Hamilton, Clark A.
PAT-APPL-853 354; Filed 21 Nov 77.

High-Frequency Limitations of the Double-Junction SQUID Amplifier;
Zimmerman, J. E.; Sullivan, D. B.
Appl. Phys. Lett. 31:360-362; Sep 77.

RF Attenuation Measurement System Using a SQUID;
Adair, Robert T.; Frederick, Nolan V.; Sullivan, Donald B.
NBSIR 77-863; Sep 77.

A Low-Noise Josephson Mixer for the 1 mm Wavelength Range;
Edrich, J.; Sullivan, D. B.; McDonald, D. G.
IEEE Trans. Microwave Theory Tech. MTT-25:476-479; Jun 77.

Squid Instruments and Shielding for Low-Level Magnetic Measurements;
Zimmerman, James E.
J. Appl. Phys. 48:702-710; Feb 77.

Advances in the Use of SQUIDS for RF Attenuation Measurement;
Frederick, N. V.; Sullivan, D. B.; Adair, R. T.
IEEE Trans. Magn. MAG-13:361-364; Jan 77.

Analog Computer Studies of Frequency Multiplication and Mixing with the Josephson Junction;
Risley, A. S.; Johnson, E. G., Jr; Hamilton, C. A.
Proc. 1976 Applied Superconductivity Conf., Stanford, CA,
IEEE Trans. Magn. MAG-13:381-384; Jan 77.

Can Superconductivity Contribute to the Determination of the Absolute Ampere?;
Sullivan, D. B.; Frederick, N. V.
IEEE Trans. Magn. MAG-13:396-399; Jan 77.

Picosecond Pulses from Josephson Junctions: Phenomenological and Microscopic Analyses;
Peterson, Robert L.; McDonald, Donald G.
IEEE Trans. Magn. MAG-13:887-890; Jan 77.

Refrigeration for Small Superconducting Devices;
Zimmerman, J. E.; Radebaugh, R.; Siegwarth, J. D.
DKV-annual meeting and joint meeting with the International Institute of Refrigeration, Munich, Germany, F.R.G, 13 Oct 1976.
Rept No. CONF-761010-1; 76.

The Human Magnetoencephalogram: Some EEG and Related Correlations;
Reite, Martin; Zimmerman, James E.; Edrich, Jochen; Zimmerman, John
Electroencephalography and Clinical Neurophysiology 40:59-66; 76.

Strong-Coupling Correction to the Jump in the Quasiparticle Current of a Superconducting Tunnel Junction;
Harris, Richard E.; Dynes, R. C.; Ginsberg, D. M.
Phys. Rev. B 14:993-995; Aug 76.

Strong-Coupling Correction to the Low-Frequency Electrical Conductivity of Superconductors and Josephson Junctions;
Harris, Richard E.; Ginsberg, D. M.; Dynes, R. C.
Phys. Rev. B 14:990-992; Aug 76.

Intrinsic Response Time of a Josephson Tunnel Junction;
Harris, Richard E.
Phys. Rev. B 13:3818-3821; May 76.

RF Applications of the Josephson Effect;
Kamper, Robert A.
Microwave J. 19:39-41; Apr 76.

Modeling Josephson Junctions;
McDonald, D. G.; Johnson, E. G.; Harris, R. E.
Phys. Rev. B 13:1028-1031; Feb 76.

Accurate Rotational Constants, Frequencies, and Wavelengths from $^{12}C^{16}O_2$ Lasers Stabilized by Saturated Absorption;
Petersen, F. R., McDonald, D. G.; Cupp, J. D.; Danielson, B. L.
Proc. Laser Spectroscopy Conf., Jun 25-29, 1973; Vail, CO, p 555-569; 75.

Josephson Weak-Link Devices;
Silver, A. H.; Zimmerman, J. E.
Applied Superconductivity, V. L. Newhouse, ed., Academic Press, p 1-80; 75.

Tests of Cryogenic SQUID for Geomagnetic Field Measurements;
Zimmerman, J. E.; Campbell, W. H.
Geophysics 40:269; 75.

Cryogenic Direct Current Comparators and their Applications;
Dziuba, R. F.; Sullivan, D. B.
IEEE Trans. Magn. MAG-11:716-719; Mar 75.

Phase Slip, Dissipation, Bernoulli Effect, Parametric Capacitance, and Other Curious Features of the Josephson Effect;
Zimmerman, J. E.
IEEE Trans. Magn. MAG-11:852-855; Mar 75.

Review of Superconducting Electronics;
Kamper, Robert A.
IEEE Trans. Magn. MAG-11:141-146; Mar 75.

Magnetic Properties of Internally Oxidized Copper;
Fickett, F. R.; Sullivan, D. B.
19th Annual Conf. on Magnetism and Magnetic Materials, 1973; Boston, MA, AIP Conf. Proc. 18; 74.

Review of Electromagnetic Measurements Using the Josephson Effect;
Kamper, Robert A.
Proc. ISA Int. Instrumentation-Automation Conf., Oct 28-31, 1974; New York, NY, p 1-8; 74.

RF Attenuation Measurements Using Quantum Interference in Superconductors;
Adair, R. T.; Hoer, C. A.; Kamper, R. A.; Simmonds, M. B.
CPEM Digest, IEE, London, England, p 4-5; 74.

The Relationship of Josephson Junctions to a Unified Standard of Length and Time;
McDonald, D. G.; Risley, A. S.; Cupp, J. D.
Proc. 13th Int. Conf. on Low Temperature Physics, Aug 21-25, 1972; Boulder, CO, Paper in Low Temperature Physics LT 13, p 542-549; 74.

A Low-Temperature Direct-Current Comparator Bridge;
Sullivan, D. B.; Dziuba, R. F.
IEEE Trans. Instrum. Meas. IM-23:256-260; Dec 74.

RF Attenuation Measurements Using Quantum Interference in Superconductors;
Adair, R. T.; Simmonds, M. B.; Kamper, R. A.; Hoer, C. A.
IEEE Trans. Instrum. Meas. IM-23:375-381; Dec 74.

Advances in the Measurement of rf Power and Attenuation Using SQUIDS;
Kamper, R. A.; Simmonds, M. B.; Adair, R. T.; Hoer, C. A.
NBS TN 661; Sep 74.

Josephson Junctions as Radiation Detectors from Millihertz to Terahertz;
McDonald, D. G.
IEEE J. Quantum Electron. QE-10:776-777; Sep 74.

An Application of Superconducting Quantum Interference Magnetometers to Geophysical Prospecting;
Frederick, N. V.; Stanley, W. D.; Zimmerman, J. E.; Dinger, R. J.
IEEE Trans. Geosci. Electron. GE-12:102-103; Jul 74.

Magnetic Studies of Oxidized Impurities in Pure Copper Using a SQUID System;
Fickett, F. R.; Sullivan, D. B.
J. Phys. F 4:900-904; Jun 74.

Josephson Junctions at 45 Times the Energy-Gap Frequency;
McDonald, D. G.; Petersen, F. R.; Cupp, J. D.; Danielson, B. L.; Johnson, E. G., Jr.
Appl. Phys. Lett. 24:335-337; Apr 74.

Low Temperature Direct Current Comparators;
Sullivan, D. B.; Dziuba, R. F.
Rev. Sci. Instrum. 45:517-519; Apr 74.

Superconducting Devices and Materials. Quarterly Literature Survey;
Olien, Neil A.; Goree, William S.; Kamper, Robert A.; Nisenoff, Martin; Wolf, Stuart A.
NBS Cryogenic Data Center, Boulder, CO, no. 74-1; Jan-Mar 74.

Field-Usable Sharpless Wafers for Josephson Effect Devices at Millimeter Waves;
Edrich, J.; Cupp, J. D.; McDonald, D. G.
Revue de Physique Appliquee 9:195-197; Jan 74.

Spectral Analysis of a Phase Locked Laser at 891 GHz. An Application of Josephson Junctions in the Far Infrared;
Wells, J. S.; McDonald, D. G.; Risley, A. S.; Jarvis, S.; Cupp, J. D.
Revue de Physique Appliques (Supplement to J. de Physique), France, 9:285-292; Jan 74.

Measurement of rf Power and Attenuation Using Superconducting Quantum Interference Devices;
Kamper, R. A.; Simmonds, M. B.; Hoer, C. A.; Adair, R. T.
NBS TN 643; Aug 73.

Rotational Constants for $^{12}C^{16}O_2$ From Beats Between Lamb-Dip-Stabilized Lasers;
Petersen, F. R.; McDonald, D. G.; Cupp, J. D.; Danielson, B. L.
Phys. Rev. Lett. 31:573-576; Aug 73.

Analog-Computer Studies of Mixing and Parametric Effects in Josephson Junctions;
Hamilton, Clark A.
J. Appl. Phys. 44:2371-2377; May 73.

Portable Helium Dewars for Use with Superconducting Magnetometers;
Zimmerman, J. E.; Siegwarth, J. D.
Cryogenics 13:158-159; Mar 73.

Superconducting Devices and Materials;
Goree, William S.; Nisenoff, Martin; Wolf, Stuart A.; Kamper, Robert A.; Olien, Neil A.
NBS Cryogenic Data Center; Boulder, CO, Quarterly literature survey, no. 73-1; Jan-Mar 73.

A New Technique for RF Measurements Using Superconductors;
Kamper, R. A.; Simmonds, M. B.; Adair, R. T.; Hoer, C. A.
Proc. IEEE 61:121-122; Jan 73.

Flexible Laminates for Thermally Grounded Terminal Strips and Shielded Electrical Leads at Low Temperatures;
Radebaugh, Ray; Frederick, N. V.; Siegwarth, J. D.
Cryogenics 13:41-43; Jan 73.

Possible Parametric Capacitance in Josephson Junctions;
Zimmerman, J. E.
Phys. Lett. 42A:375-376; Jan 73.

A Review of the Properties and Applications of Superconducting Point Contacts;
Zimmerman, J. E.
Proc. Conf. on Applied Superconductivity, May 1-3, 1972; Annapolis, MD, p 544-561; 72.

Precise Electrical Measurements at Low Temperature;
Sullivan, D. B.
Proc. Applied Superconductivity Conf., May 1-3, 1972; Annapolis, MD; p 631-639; 72.

Quantum Mechanical Measurement of rf Attenuation;
Kamper, R. A.; Simmonds, M. B.; Adair, R. T.; Hoer, C. A.
Proc. 1972 Applied Superconductivity Conf., May 1-3, 1972; Annapolis, MD, p 696-700; 72.

Computation of Spectral Data for a Josephson Junction Circuit;
Johnson, E. G., Jr; McDonald, D. G.
NBS TN 627; Nov 72.

Developments in Cryoelectronics;
Kamper, Robert A.; Sullivan, Donald B.
NBS TN 630; Nov 72.

Superconducting Quantum Interference Devices: an Operational Guide for rf-Biased Systems;
Sullivan, D. B.
NBS TN 629; Nov 72.

Analog Computer Studies of Subharmonic Steps in Superconducting Weak Links;
Hamilton, C. A.; Johnson, E. G., Jr.
Phys. Lett. A 41:393-394; Oct 72.

Broadband Superconducting Quantum Magnetometer;
Kamper, R. A.; Simmonds, M. B.
Appl. Phys. Lett. 20:270-272; Apr 72.

Four-Hundredth-Order Harmonic Mixing of Microwave and Infrared Laser Radiation Using a Josephson Junction and a Maser;
McDonald, D. G.; Risley, A. S.; Cupp, J. D.; Evenson, K. M.; Ashley, J. R.
Appl. Phys. Lett. 20:296-299; Apr 72.

Low Temperature Voltage Divider and Null Detector;
Sullivan, D. B.
Rev. Sci. Instrum. 43:499-505; Mar 72.

Superconducting Devices and Materials. A Literature Survey;
Goree, W. S.; Kamper, R. A.; Olien, Neil A.
NBS Cryogenic Data Center; Boulder, CO, Quarterly reports; 4 issues; Mar 72.

Josephson Effect Devices and Low-Frequency Field Sensing;
Zimmerman, J. E.
Cryogenics 12:19-31; Feb 72.

A Mechanical Superconducting Switch for Low Temperature Instrumentation;
Siegwarth, J. D.; Sullivan, D. B.
Rev. Sci. Instrum. 43:153-154; Jan 72.

Superconducting Materials;
Kamper, R. A.
Electronics Design Materials, p 71-79; 71.

Survey of Noise Thermometry;
Kamper, Robert A.
Proc. 5th Symposium on Temperature, Its Measurement and Control in Science and Industry, Jun 21-24, 1971; Washington, DC; 71.

Mechanical Analogs of Time Dependent Josephson Phenomena;
Sullivan, D. B.; Zimmerman, J. E.
American J. Phys. 39:1504-1517; Dec 71.

Sensitivity Enhancement of Superconducting Quantum Interference Devices through the Use of Fractional-Turn Loops;
Zimmerman, J. E.
J. Appl. Phys. 24:4483-4487; Oct 71.

Observation of Noise Temperature in the Millikelvin Range;
Kamper, R. A.; Siegwarth, J. D.; Radebaugh, R.; Zimmerman, J. E.
Proc. IEEE 59:1368-1369; Sep 71.

Miniature Ultrasensitive Superconducting Magnetic Gradiometer and Its Use in Cardiography and Other Applications;
Zimmerman, J. E.; Frederick, N. V.
Appl. Phys. Lett. 19:16-19; Jul 71.

Resistance of a Silicon Bronze at Low Temperatures;
Sullivan, D. B.
Rev. Sci. Instrum. 42:612-613; May 71.

Harmonic Mixing of Microwave and Far-Infrared Laser Radiation using a Josephson Junction;
McDonald, D. G.; Risley, A. S.; Cupp, J. D.; Evenson, K. M.
Appl. Phys. Lett. 18:162-164; Feb 71.

High-Frequency Limit of the Josephson Effect;
McDonald, D. G.; Evenson, K. M.; Wells, J. S.; Cupp, J. D.
J. Appl. Phys. 42:179-181; Jan 71.

Noise Thermometry with the Josephson Effect;
Kamper, R. A.; Zimmerman, J. E.
J. Appl. Phys. 42:132-136; Jan 71.

Recent Developments in Superconducting Devices;
Zimmerman, J. E.
J. Appl. Phys. 42:30-37; Jan 71.

Cryoelectronics;
Kamper, R. A.
Proc. Helium Society Symposium, Mar 23-24, 1970; Washington, DC, p 68-82; 70.

Generation of Harmonics and Subharmonics of the Josephson Oscillation;
Sullivan, D. B.; Peterson, Robert L.; Kose, V. E.; Zimmerman, J. E.
J. Appl. Phys. 41:4865-4873; Nov 70.

Magnetocardiograms Taken Inside A Shielded Room With A Superconducting Point-Contact Magnetometer;
Cohen, David; Edelsack, Edgar A.; Zimmerman, James E.
Appl. Phys. Lett. 16:278-280; Apr 70.

Some Applications Of The Josephson Effect;
Kamper, R. A.; Mullen, L. O.; Sullivan, D. B.
NASA-CR-1565; NBS TN 381; Mar 70.

Influence of External Noise On Microwave-Induced Josephson Steps;
Kose, V. E.; Sullivan, D. B.
J. Appl. Phys. 41:169-174; Jan 70.

The Josephson Effect;
Kamper, Robert A.
IEEE Trans. Electron Devices ED-16:840-844; Oct 69.

Harmonic Generation and Submillimeter Wave Mixing With The Josephson Effect;
McDonald, D. G.; Kose, V. E.; Evenson, K. M.; Wells, J. S.; Cupp, J. D.
Appl. Phys. Lett. 15:121-122; 15 Aug 69.

Fabrication Of Tunnel Junctions On Niobium Films;
Mullen, L. O.; Sullivan, D. B.
J. Appl. Phys. 40:2115-2117; Apr 69.

Cryoelectronics;
Kamper, R. A.
Cryogenics, 9:20-25; Feb 69.

Contribution of Thermal Noise to the Line-Width of Josephson Radiation from Superconducting Point Contacts;
Silver, A. H.; Zimmerman, J. E.; Kamper, R. A.
Appl. Phys. Lett. 11:209-211; 15 Sep 67.

Millidegree Noise Thermometry;
Kamper, R. A.
Proc. Symposium on the Physics of Superconducting Devices (ONR report), Charlottesville, VA; Apr 67.

SUPERCONDUCTORS AND MAGNETIC MATERIALS

Magnetic Field Effects on Tensile Behavior of Alloys 304 and 310 at 4 K;
Reed, R. P.; Arvidson, J. M.; Ekin, J. W.; Schoon, R. H.
Proc. Int. Cryogenic Materials Conf.; May 11-14, 1982; Kobe Japan; p 33-36; 83.

Conductors for Advanced Energy Systems Annual Report 1982;
Ficket, F. R.
INCRA Research Report, Paper#321A; Int. Copper Research Assoc., 708 3rd Ave., NY 10017; p 1-97; Aug 83.

Electrical Properties;
Fickett, F. R.
Chapt. 5 in Materials at Low Temperatures, R. Reed; A. F. Clark, eds., American Society for Metals, Metals Park, OH 44073; p 163-201; Jun 83.

Magnetic Properties;
Fickett, F. R.; Goldfarb, R. B.
Chap. 6 in Materials at Low Temperatures, R. Reed; A. F. Clark, eds., American Society of Metals, Metals Park, OH 44073; p 203-235; Jun 83.

Superconductors;
Ekin, J. W.
Chapt. 13 in Materials at Low Temperatures, R. Reed; A. F. Clark, eds., American Society of Metals, Metals Park, OH 44073, p 465-513; Jun 83.

Thermal Expansion;
Clark, A. F.
Chapt. 3 in Materials at Low Temperatures, R. Reed; A. F. Clark, eds., American Society for Metals, Metals Park, OH 44073, p 75-132; Jun 83.

Effect of Stainless Steel Reinforcement on the Critical Current Versus Strain Characteristic of Multifilamentary Nb_3Sn Superconductors;
Ekin, J. W.
J. Appl. Phys. 54(5):2869-2871; May 83.

J-B-T-ε Interaction in A15, B1, and C15 Crystal Structure Superconductors;
Ekin, J. W.
Proc. Applied Superconductivity Conf., IEEE Trans. Magn. MAG-19:900-902; May 83.

Multifilamentary Nb-Nb_3 Composite by Liquid Infiltration Method: Superconducting, Metallurgical, and Mechanical Properties;
Hong, M.; Hull, G. W., Jr.; Holthuis, J. T.; Hazzenzahl, W. V.; Ekin, J. W.
Proc. Applied Superconductivity Conf., IEEE Trans. Magn. MAG-19(3):912-916; May 83.

Oxygen-Free Copper at 4K;
Fickett, F. R.
Proc. Applied Superconductivity Conf., IEEE Trans. Magn. MAG-19:228-231; May 83.

Properties of NbN Films Crystallized from the Amorphous State;
Gavaler, J. R.; Greggi, J.; Wilmer, R.; Ekin, J. W.
Proc. Applied Superconductivity Conf., IEEE Trans. Magn. MAG-19(3):418-421; May 83.

The Effect of Field Orientation on Current Transfer in Multifilamentary Superconductors;
Goodrich, L. F.
Proc. Applied Superconductivity Conf., IEEE Trans. Magn. MAG-19(3):244-247; May 83.

Four-Dimensional J-B-T-ε Critical Surface for Superconductivity;
Ekin, J. W.
J. Appl. Phys. 54(1):303-306; Jan 83.

Proc. International Cryogenic Materials Conference; May 11-14, 1982; Kobe, Japan;
Clark, A. F.; Tachikawa, K., eds.
Butterworths; Jan 83.

Effect of Strain on the Critical Current and Critical Field of B1 Structure NbN Superconductors;
Ekin, J. W.
Appl. Phys. Lett. 41(10):996; Nov 82.

Effect of Strain on the Critical Current of Sputtered NbN Films;
Ekin, J. W.; Gavaler, J. R.; Greggi, J.
Bull. Am. Phys. Soc. p 8-12; Mar 1982 and Appl. Phys. Lett. 41(10):996-998; Nov 82.

Spin-Freezing below the Ferromagnetic Transition Determined by the Imaginary Component of ac Magnetic Susceptibility
Goldfarb, R. B.; Fickett, F. R.; Rao, K.V.; Chen, H. S.
J. Appl. Phys. 53(11):7687; Nov 82.

Development of Standards for Superconductors;
Clark, A. F.
NBSIR 82-1678; Jul 82.

Effect of Twist Pitch on Short-Sample V-I Characteristics of Multifilamentary Superconductors;
Goodrich, L. F.; Ekin, J. W.; Fickett, F. R.
Adv. Cryo. Eng. 28:571-58; New York: Plenum Press; Jul 82.

Low Temperature Material Perspective;
Fickett, F. R.
Adv. Cryo. Eng. 28:1-16; Jul 82.

Training Studies of Epoxy-Impregnated Superconductor Windings;
Ekin, J. W; Pittman, E. S.; Supercynski, M. J.; Waltman, D. J.
Adv. Cryo. Eng., 28:719-728, New York: Plenum Press; Jul 82.

Critical Current Measurement: A Compendium of Experimental Effects;
Goodrich, L. F.; Fickett, F. F.
Cryogenics, p 225-242; May 82.

Effect of Strain on the Critical Parameters of V_2(Hf,Zr) Laves Phase Composite Superconductors;
Ekin, J. W.
Appl. Phys. Lett. 40(9):844-846; May 82.

Electrical Properties of Materials and Their Measurement at Low Temperatures;
Fickett, F. R.
NBS TN 1053; Mar 82.

Electric and Magnetic Properties of CuSn and CuNi Alloys at 4 K;
Fickett, F. R.
Cryogenics 22:135; Mar 82.

Further Evidence for a Spin-Glass Phase Transition in Amorphous Fe-Mn-P-B-Al Alloys;
Goldfarb, R. B.; Rao, K. V.; Chen, H. S.; Patton, C. E.
J. Appl. Phys. 53:2217; Mar 82.

Electrical and Magnetic Properties of Internally Oxidized Copper and Dilute Copper-Iron Alloys;
Fickett, F. R.
J. Phys. F: Met. Phys. 12:1953-1969; Jan 82.

Effect of Strain on the Critical Current of Nb-Hf/Cu-Sn-Ga Multifilamentary Superconductors;
Ekin, J. W.; Sekine, H.; Tachikawa, K.
J. Appl. Phys. 52:6252; 81.

Lap Joint Resistance and Intrinsic Critical Current Measurements on a NbTi Superconducting Wire;
Goodrich, L. F.; Ekin, J. W.
IEEE Trans. Magn. MAG-17:69; 81.

Magnetic Susceptibility Studies of Amorphous Ni-Mn-P-B-Al Alloys;
Goldfarb, R. B.; Rao, K. V.; Fickett, F. R.; Chen, H. S.
J. Appl. Phys. 52:1744; 81.

Mechanical Properties and Strain Effects in Superconductors;
Ekin, J. W.
Chap. 7 in Superconducting Materials Science, S. Foner and B. Schwartz, eds., New York: Plenum Press, p 455-509; 81.

Miniature Multipin Electrical Feedthrough for Vacuum Use;
Goldfarb, R. B.
Cryogenics 21:746; 81.

Strain Scaling Law for Flux Pining in NbTi, Nb_3Sn, Nb-Hf/Cu-Sn-Ga, V_3Ga, and Nb_3Ge;
Ekin, J. W.
IEEE Trans. Magn. MAG-17:658; 81.

Structural Materials for Large Superconducting Magnets;
Fickett, F. R.; McHenry, H. I.
IEEE Trans. Magn. MAG-17:2297; 81.

Superparamagnetism and Spin-Glass Freezing in Nickel-Manganese Alloys;
Goldfarb, R. B.; Patton, C. E.
Phys. Rev. B 24:1360; 81.

NBS Superconductor Standardization Program;
Fickett, F. R.; Goodrich, L. F.
Proc. 1980 Superconducting MHD Magnet Design Conf. (Francis Bitter National Magnet Laboratory, MIT); Oct 81.

Thermal Expansion of Multifilamentary Nb_3Sn and V_3Ga Superconductive Cables and Fiberglass-Epoxy and Cotton-Phenolic Composite Materials;
Fujii, G.; Ranney, M. A.; Clark, A. F.
Jap. J. Appl. Phys. 20, L267-L270; Apr 81.

Thermal Expansion of Several Materials for Superconducting Magnets;
Clark, A. F.; Fujii, G.; Ranney, M. A.
Proc. 7th Magnet Technology Conf., Karlsruhe, Germany, IEEE Trans. Magn. MAG-17:2316; Apr 81.

Advances in Cryogenic Engineering - Materials, Vol. 26;
Clark, A. F.; Reed, R. P., eds.
Proc. 3rd Int. Cryogenic Mater. Conf., Aug 1979; Madison, WI, New York: Plenum Press; 80.

Definitions of Terms for Practical Superconductors,
4. Josephson Phenomena;
Fickett, F. R.; Kaplan, S. B.; Powell, R. L.; Radebaugh, R.; Clark, A. F.
Cryogenics 20:319-325; 80.

Development of Standards for Superconductors;
Fickett, F. R.; Clark, A. F.
Proc. 8th Int. Cryogenic Eng. Conf., Jun 1980; Genova; IPC Science and Technology Press, Guildford, England, p 494-8; 80.

Filamentary A15 Superconductors;
Suenaga, M.; Clark, A. F., eds.
New York: Plenum Press; 80.

Processing Limits for Ultrafine Multifilament Nb_3Sn;
Ho, J. C.; Oberly, C. E.; Garrett, H. J.; Walker, M. S.; Zeitlin, B. A.; Ekin, J. W.
Proc. Int. Cryo. Mater. Cong., 1979; Madison, WI, Adv. Cryogenic. Eng. 26:358; 80.

Strain Scaling Law and the Prediction of Unixial and Bending Strain Effects;
Ekin, J. W.
Filamentary A15 Superconductors, M. Suenaga and A. F. Clark, eds., New York: Plenum Press; p 455-509; 80.

Strain Scaling Law for Flux Pinning in Practical Superconductors. Part I: Basic Relationship and Application to Nb_3Sn Conductors;
Ekin, J. W.
Cryogenics 20:611; 80.

Tensile, Fracture Toughness and Magnetization Testing in Cast 316-L Stainless Steel and Its Weldment;
Genens, L.; Kim, S. H.; Wang, S. T.; Reed, R. P., Fickett, F. R.
Proc. 8th Int. Cryo. Eng. Conf. (IPC Science and Technology Press, paper 3E) 20 p; 80.

Thermal Expansion of Cryogenic-Grade Glass-Epoxy Laminates; Materials Studies of Magnetic Fusion Energy Applications at Low Temperatures - III;
Ranney, M. A.; Clark, A. F.
NBSIR 80-1627:405; 80.

Training of Epoxy-Impregnated Superconductor Windings;
Ekin, J. W.; Schramm, R. E.; Superczynski, M. J.
Proc. 3rd Int. Cryogenic Mater. Conf., Aug 1979; Madison, WI; Adv. Cryo. Eng. 26:677; 80.

Development of Standards for Superconductors;
Fickett, F. R.; Goodrich, L. F.; Clark, A. F.
NBSIR 80-1642; Dec 80.

Effect of Thermal Contraction of Sample Holder Material on Critical Current Measurement;
Fujii, G.; Ekin, J. W.; Radebaugh, R.; Clark, A. F.
Advances in Cryogenic Engineering - Materials, Vol. 26, New York: Plenum Press; p 589-98; 80. Also published as Technical Report A-1074, Institute of Solid State Physics, Univ. of Tokyo; Aug 80.

Development of Standards for Practical Superconductors;
Clark, A. F.
Proc. Superconductivity Technical Exchange, PIC-E:E-SC 209/1, Naval Research Laboratory, Washington, DC; p 103-14; Apr 80.

A Convenient Standard for Low-Field Susceptibility Calibration;
Rosenblum, J.; Larson, E.; Hoblitt, R.; Fickett, F. R.
Rev. Sci. Instrum 50:1027; 79.

Effect of Strain on Critical Current of Nb_3Ge;
Ekin, J. W.; Braginski, A. I.
IEEE Trans. Magn. MAG-15:509; 79.

Effect of Strain on Epoxy-Impregnated Superconducting Composites;
Ekin, J. W.; Schramm, R. E.; Clark, A. F.
Nonmetallic Materials and Composites at Low Temperatures; A. F. Clark; R. P. Reed; G. Hartwig, eds., New York: Plenum Press, p 301-8; 79.

Materials for Superconducting Magnet Systems;
Fickett, F. R.; Reed, R. P., eds.
Traverse City, MI: Belfour-Stulen, Inc.; 79.

Nonmetallic Materials and Composites at Low Temperatures;
Clark, A. F.; Reed, R. P.; Hartwig, G., eds.
Proc. ICMC Symposium, Jul 1978; Munich, Germany, New York: Plenum Press; 79.

Space Applications of Superconductivity: High Field Magnets;
Fickett, F. R.
Cryogenics 19:691-701; 79.

Standards for Superconductors;
Fickett, F. R.; Clark, A. F.,
DoE Conf. 79-0854, Proc. Mechanical and Magnetic Energy Storage, U.S. Dept. of Energy, Washington, DC, p 3-8; 79.

Strain Dependence of the Critical Current and Critical Field in Multifilamentary Nb_3Sn Composites;
Ekin, J. W.
IEEE Trans. Magn. MAG-15:197; 79.

Structures, Insulators, and Conductors for Large Superconducting Magnets;
Fickett, F. R.; Reed, R. P.; Dalder, E. N. C.
J. Nucl. Mat. 85 and 86:353-60; 79.

The Development of Standards for Practical Superconductors
Clark, A. F.; Ekin, J. W.; Radebaugh, R.; Read, D. T.
IEEE Trans. Magn. MAG-15:224-7; 79.

Development of Standards for Superconductors;
Fickett, F. R.; Clark, A. F.
NBSIR 80-1629; Dec 79.

Material Studies for Superconducting Machinery Coil Composites;
Ekin, J. W.; Kasen, M. B.; Read, D. T; Schramm, R. E.; Tobler, R. L.; Clark, A. F.
NBSIR 80-1633; Nov 79.

A Standards Program for AC Losses in Superconductors;
Radebaugh, R.; Fujii, G.; Read, D. T.; Clark, A. F.
Int. Congress of Refrigeration, IIR A1/2-10:1-4; Sep 79.

Definitions of Terms for Practical Superconductors.
3. Fabrication, Stabilization, and Transient Losses;
Read, D. T.; Ekin, J. W.; Powell, R. L.; Clark, A. F.
Crogenics 19(6):327-32; Jun 79.

Magnetic Properties of the 'Nonmagnetic' Stainless Steels;
Fickett, F. R.
NBSIR 79-1609; Jun 79.

Materials for Superconducting Magnets for MHD Power Systems, a Usage Survey and a Proposed Research Program;
Reed, R. P.; McHenry, H. I.; Kasen, M. B.; Fickett, F. R.; Dalder, E. N. C.
MIT Program Report on MHD; Jun 79.

Materials Studies for Magnetic Fusion Energy Applications at Low Temperatures - II;
Fickett, F. R., ed.
NBSIR 79-1609; Jun 79.

Review of the 1978 NBS/DoE Workshop on Materials at Low Temperatures;
Fickett, F. R.; Reed, R. P.
Proc. 1st Topical Meeting on Fusion Reactor Materials, Miami Beach, FL, p 352; Jan 79.

Advances in Cryogenic Engineering, Vol. 24;
Timmerhaus, K. D.; Reed, R. P.; Clark, A. F., eds.
Proc. 2nd Int. Cryogenic Mater. Conf., Aug 1977; Boulder, CO; New York: Plenum Press; 78.

Current Transfer in Multifilamentary Superconductors. I. Theory;
Ekin, J. W.
J. Appl. Phys. 49(6):3406-1; 78.

Effects of Stress on Practical Superconductors;
Clark, A. F.
MT-6, Proc. Int. Conf. on Magn. Tech., Alpha, Bratislava, Czechoslovakia, p 612-18; 78.

Fatigue and Stress Effects in NbTi and Nb_3Sn Multifilamentary Superconductors;
Ekin, J. W.
Proc. Int. Cryogenic Mater. Conf., 1977; Boulder, CO; Adv. in Cry. Eng. 24:306; 78.

Low Temperature Specific Heat of Two Stainless Steels;
Ho, J. C.; King, G. B.; Fickett, F. R.
Cryogenics 18:296; 78.

Properties of a Superconducting Coil Composite and Its Components;
Clark, A. F.; Arp, V. D.; Ekin, J. W.
MT-6, Proc. Int. Conf. on Magn. Tech., Alpha, Bratislava, Czechoslovakia, p 673-79; 78.

Special Purpose Materials: An Assessment of Needs and the Role of these Materials in the National Program;
Gold, R. E.; Fickett, F. R.; et al.
Proc. 3rd Topical Meeting on the Technology of Controlled Nuclear Fusion, DoE Conf-780508; 78.

Magnet Materials for Fusion Energy Section of: "The Fusion Reactor Materials Program Plan, Section IV, Special Purpose Materials";
Fickett, F. R.
U.S. DoE Report DoE/ET-0032/4; Jul 78.

Current Transfer in Multifilamentary Superconductors.
II. Experimental Results;
Ekin, J. W.; Clark, A. F.; Ho, J. C.
J. Appl. Phys. 49(6):3410-1; Jun 78.

High Field Magnets;
Fickett, F. R.
Chap. 2 in The Role of Superconductivity in the Space Program: An Assessment of Present Capabilities and Future Potential, NBSIR 78-885; May 78.

Materials Studies for Magnetic Fusion Energy Applications at Low Temperatures - I;
Fickett, F. R.; Reed, R. P.
NBSIR 78-884; Apr 78.

Definitions of Terms for Practical Superconductors. 2. Critical Parameters;
Powell, R. L.; Clark, A. F.
Cryogenics 18(3):137-41; Mar 78.

Investigation of a Practical Superconductor with a Copper Matrix;
Fickett, F. R.
INCRA Annual Report, Project No. 255; Jan 78.

A Low Temperature Materials Research Program for Magnetic Fusion Energy;
Fickett, F. R.; Kasen, M. B.; McHenry, H. I.; Reed, R. P.
Adv. Cryogenic Eng. 24:52; 77.

A Review of the NBS-ERDA Workshop on Materials at Low Temperatures;
Fickett, F. R.; Reed, R. P.
Proc. 7th Symposium on Engineering Problems of Fusion Research, IEEE Pub. No. 77CH1267-4-NPS:1506-1509; 77.

A Simple Method for Producing High Conductivity Copper for Low Temperature Applications;
Rosenblum, S.; Steyert, W. A.; Fickett, F. R.
Cryogenics 17:645; 77.

Mechanisms for Critical-Current Degradation in NbTi and Nb_3Sn and NbTi Multifilamentary Wires;
Ekin, J. W.
Proc. 1976 Applied Superconductivity Conf., IEEE Trans. Magn. MAG-13:127; 77.

Studies of Superconducting Wires from Niobium Precipitated in Copper-Tin-Niobium Alloys;
Fickett, F. R.; Sparks, L. L.; Kasen, M. G.
Manufacture of Superconducting Materials, R. W. Meyerhoff, ed., American Society for Metals, Metals Park, OH, p 164; 77.

The Low Temperature Tensile Behavior of Copper-Stabilized Niobium-Titanium Superconducting Wire;
Reed, R. P.; Mikesell, R. P.; Clark, A. F.
Advances in Cryogenic Engineering, vol. 22, New York: Plenum Press, p 463-471; 77.

Definition of Terms for Practical Superconductors. 1. Fundamental States and Flux Phenomena;
Powell, R. L.; Clark, A. F.
Cryogenics 17(12):697-701; Dec 77.

Magnetic Fusion Energy Low Temperature Materials Program - A Survey;
Reed, R. P.; Fickett, F. R.; Kasen, M. B.; McHenry, H. I.
Report to ERDA Division of Magnetic Fusion Energy; Mar 77.

Defining Critical Current;
Clark, A. F.; Ekin, J. W.
IEEE Trans. Magn. MAG-13(1):38-40; Jan 77.

Advances in Cryogenic Engineering - Vol. 22;
Timmerhaus, K. D.; Reed, R. P.; Clark, A. F., eds.
Proc. 1st Int. Cryogenic Mater. Conf., Aug. 1975; Kingston, Ontario,
New York: Plenum Press; 76.

A Research Program on the Properties of Structural Materials at 4 K;
Reed, R. P.; Clark, A. F.; van Reuth, E. C.
Adv. Cryo. Eng., New York: Plenum Press, 22:1-8; 76.

Effect of Strain on the Critical Current of Nb_3Sn and NbTi Multifilamentary Composite Wires;
Ekin, J. W.; Clark, A. F.
AIP Conf. Proc. no. 34, New York: Amer. Inst. Phys., p 81-83; 76.

Effect of Stress on the Critical Current of Nb_3Sn Multifilamentary Composite Wire;
Ekin, J. W.
Appl. Phys. Lett. 29:216; 76.

Effect of Stress on the Critical Current of NbTi Multifilamnetary Composite Wire;
Ekin, J. W.; Fickett, F. R.; Clark, A. F.
Adv. Cryo. Eng., New York: Plenum Press, 22:449-452; 76.

Effect of Stress on the Critical Current of NbTi Multifilamentary Composite Wire;
Ekin, J. W.; Fickett, F. R.; Clark, A. F.
Proc. Int. Cryogenic Mater. Conf., 1975; Kingston, Ontario; Adv. in Cryogenic Eng., New York: Plenum Press 22:449; 76.

Magnetic and Electrical Properties of Internally Oxidized FeCu Alloys;
Fickett, F. R.
Amer. Inst. Phys. Conf. Proc. 34:25; 76.

On Lysozyme as a Possible High-Temperature Superconductor;
Sorenson, C. M.; Fickett, F. R.; Mockler, R. C.; O'Sullivan, W. J.; Scott, J. F.
J. Phys. C: Solid State Phys. 9:L251; 76.

Properties of Nonsuperconducting Technical Solids at Low Temperatures - An Update;
Fickett, F. R.
Proc. 5th Int. Conf. on Magn. Tech. (MT-5), Rome, Laboratori Nazionali del CNEN, Frascati, Italy, p 659; 76.

Structural Materials for Cryogenic Appications;
Fickett, F. R.
Proc. 6th Int. Cryogenic Eng. Conf., May 11-14, 1976; Grenoble, France; IPC Science and Technology Press, p 20; 76.

Stress Effects in Superconductors;
Clark, A. F.
Cryogenics 16(10):632-3; Oct 76.

Controlled Thermonuclear Reactors: A Prospective Large-Scale Use of Pure Copper;
Fickett, F. R.
INCRA Research Report; Aug 76.

Characterization of a Superconducting Coil Composite and Its Components;
Clark, A. F.; Weston, W. F.; Arp, V. D.; Hust, J. G.; Trapani, R. J.
NBSIR 76-837; Jul 76.

Low Temperature Thermal Expansion of Barium Ferrite;
Clark, A. F.; Haynes, W. M.; Deason, V. A.; Trapani, R. J.
Cryogenics 16(3):267-270; May 76.

A Preliminary Investigation of the Behavior of High Purity Copper in High Magnetic Fields and a Final Summary of Project 186;
Fickett, F. R.
INCRA Annual Report, Project No. 186C; Mar 76.

A Technique for Preparing Homogeneous Bulk Samples of Concentrated Alloys;
Ekin, J. W.; Deason, V. A.
Rev. Sci. Instr. 46:327; 75.

Critical Currents in Granular Superconductors;
Ekin, J. W.
Phys. Rev. B 12:2676; 75.

The Magnetic Coupling Force of the Superconducting dc Transformer;
Ekin, J. W.; Clem, J. R.
Phys. Rev. B 12:1753; 75.

Materials Research for Superconducting Machinery - IV; Semi-Annual Tech. Rept., Mar-Sep. 1975;
Reed, R. P.; Clark, A. F.; vanReuth, E. C., eds.
Advanced Research Projects Agency, Arlington, VA ADA019230; Oct 75.

Materials Research for Superconducting Machinery - III; Semi-Annual Tech. Rept., Sep. 74-Mar. 75;
Reed, R. P.; Clark, A. F.; van Reuth, E. C., eds.
Advanced Research Projects Agency, Arlington, VA, ADA012365; Apr 75.

Magnetic Properties of Internally Oxidized Copper;
Fickett, F. R., Sullivan, D. B.
AIP Conf. Proc. 18:740; 74.

Magnetic Studies of Oxidized Impurities in Pure Copper Using a SQUID System;
Fickett, F. R.; Sullivan, D. B.
J. Phys. F 4:900; 74.

Magnetothermal Conductivity;
Fickett, F. R.; Sparks, L. L.
NBSIR 74-393; 74.

Magnetothermal Conductivity;
Sparks, L. L; Fickett, F.R.
NBSIR 74-359; 74.

Oxygen Annealing of Copper: A Review;
Fickett, F. R.
Mat. Sci. and Eng. 14:199; 74.

U. S. Programs on Large Scale Applications of Superconductivity;
Powell, R. L.; Fickett, F. R.; Birmingham, B. W.
Chap. 17 in Superconducting Machines and Devices -- Large Systems Applications; Proc. NATO Advanced Study Institute, Sep 5-14, 1973; Entreves, Italy; S. Foner and B. B. Schwartz, eds., New York: Plenum Press, p 651-675; 74.

Materials Research for Superconducting Machinery - II, Semi-Annual Tech. Rept., Mar.-Sep. 74;
Clark, A. F.; Reed, R. P.; van Reuth, E. C., eds.
Advanced Research Projects Agency, Arlington, VA, ADA004586; Oct 74.

A Preliminary Investigation of the Behavior of High Purity Copper in High Magnetic Fields;
Fickett, F. R.
INCRA Annual Report, Project No. 186B; Aug 74.

Materials Research for Superconducting Machinery, Semi-Annual Tech. Rept., Sep 1973-Mar 1974;
Clark, A. F.; Reed, R. P.; van Reuth, E. C., eds.
Advanced Research Projects Agency, Arlington, VA, AD780596; Mar 74.

Characterization of a Superconducting Coil Composite;
Fowlkes, C. W.; Angerhofer, P. E.; Newton, R. N.; Clark, A. F.
NBSIR 73-349; Dec 73.

Superconducting Levitation of High Speed Vehicles;
Arp, V. D.; Clark, A. F.; Flynn, T. M.
Transport. Eng. J., ASCE 99:873-85; Nov 73.

A Compilation and Evaluation of Mechanical, Thermal and Electrical Properties of Selected Polymers;
Schramm, R. E.; Clark, A. F.; Reed, R. P.
NBS MN 132, Washington, DC: U.S. GPO; Sep 73.

A Preliminary Investigation of the Behavior of High Purity Copper in High Mangetic Fields;
Fickett, F. R.
INCRA Annual Report, Project No. 186A; Aug 73.

Mechanical, Thermal, and Electrical Properties of Selected Polymers;
Reed, R. P.; Schramm, R. Clark, A. F.
Cryogenics 13:67-82; Feb 73.

Some Applications of Cryogenics to High Speed Ground Transportation;
Arp, V. D.; Clark, A. F.; Flynn, T. M.
NBS TN 635; Feb 73.

Characterization of High Purity Metals by the Eddy Current Decay Method;
Clark, A. F.; Deason, V. A.; Powell, R. L.
Cryogenics 12:35; 72.

Magnetoresistivity of Copper and Aluminum at Cryogenic Temperatures;
Fickett, F. R.
Proc. 4th Int. Conf. on Magnet Technology, Sep 72, AEC CONF-720908:498; 72.

Material Variability as Measured by Low Temperature Electrical Resistivity;
Clark, A. F.; Tryon, P. V.
Cryogenics 12:451-61; Dec 72.

Properties of Nonsuperconducting Technical Solids at Low Temperatures;
Fickett, F. R.
Proc. 4th Int. Conf. on Magnet Technology, AEC CONF-720903:539; Sep 72.

Combination of a Power Transmission Line and an Active Track for a Magnetically Suspended, High Speed Train;
Clark, A. F.
J. Appl. Phys. 43(8):3598; Aug 72.

A Preliminary Investigation of the Behavior of High Purity Copper in High Magnetic Fields;
Fickett, F. R.
INCRA Annual Report, INCRA Project No. 186; Jun 72.

Standard Reference Materials: The Eddy Current Decay Method for Resistivity Characterization of High Purity Metals;
Clark, A. F.; Deason, V. A.; Hust, J. G.; Powell, R. L.
NBS SP 260-39; May 72.

Defect Annealing (4 to 295 K) After Martensitic Phase Transformation in an Fe-29 Ni Alloy;
Reed, R. P.; Clark, A. F.; Schramm, R. E.
Scripta Met. 5:485; 71.

Longitudinal Magnetoresistance Anomalies;
Fickett, F. R.; Clark, A. F.
J. Appl. Pys. 42:217; 71.

Magnetoresistance of Very Pure Polycrystalline Aluminum;
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Phys. Rev. B 3:1941; 71.

Martensitic Transformation Detection in Cryogenic Steels (Magnetometer Development);
Fickett, F. R.
NBS TN 613; 71.

Characterization of High Purity Metals by the Eddy Current Decay Method;
Clark, A. F.; Deason, V. A.; Powell, R. L.
Mater. Res. Stand. 11(8):25-28; Aug 71.

Lorenz Ratio as a Tool for Predicting Thermal Conductivity of Metals and Alloys;
Hust, J. G.; Clark, A. F.
Mater. Res. Stand. 11(8):22-24; Aug 71.

Low Temperature Electrical Resistivity of Some Engineering Alloys;
Clark, A. F.; Childs, G. E.; Wallace, G. H.
Adv. Cryo. Eng., New York: Plenum Press, 15:85-90; 70.

Low Temperature Specific Heat and Thermal Expansion of Alloys;
Clark, A. F.; Kropschot, R. H.
Int. Inst. of Refrigeration, Commission I, Sep 70, Tokyo, Bulletin de l'Institut Internationale du Froid, Annexe 1970-2, p 249; 70.

Resistivity of Polycrystalline Aluminum and Copper in High Magnetic Fields: The Effect of Temperature and Purity;
Fickett, F. R.
Appl. Phys. Lett. 17(12):525-527; 70.

Low Temperature Electrical Resistivity of Some Engineering Alloys;
Clark, A. F.; Childs, G. E.; Wallace, G. H.
Cryogenics 10:295-305; Aug 70.

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